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PARK PLAZA URBAN RENEWAL PROJECT
BOSTON REDEVELOPMENT AUTHORITY

FINAL PROJECT REPORT

SUPPORTING DOCUMENTATION

Project Improvements Report

JULY, 1971

3rd Submission

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URBAN RENEWAL PROJECT

FINAL PROJECT REPORT

SUPPORTING DOCUMENTATION

PROJECT IMPROVEMENTS REPORT

BOSTON REDEVELOPMENT AUTHORITY

July 1971

CERTIFICATE OF VOTE

The undersigned hereby certifies as follows:

(1) That he is the duly qualified and acting Secretary of the Boston Redevelopment Authority, hereinafter called the Authority, and the keeper of the records, including the journal of proceedings of the Authority.

(2) That the following is a true and correct copy of a vote as finally adopted at a meeting of the Authority held on July 29, 1971 and duly recorded in this office:

Copies of a memorandum dated July 29, 1971 were distributed re Park Plaza Urban Renewal Area Cooperation Agreement, attached to which were copies of a Cooperation Agreement between Boston Redevelopment Authority and City of Boston for Park Plaza Urban Renewal Project.

On motion duly made and seconded, it was unanimously

VOTED: that the Director is hereby authorized to enter into a Cooperation Agreement by and between the Authority and the City of Boston in substantially the form presented at this meeting.

(3) That said meeting was duly convened and held in all respects in accordance with law, and to the extent required by law, due and proper notice of such meeting was given; that a legal quorum was present throughout the meeting, and a legally sufficient number of members of the Authority voted in a proper manner and all other requirements and proceedings under law incident to the proper adoption or the passage of said vote have been duly fulfilled, carried out and otherwise observed.

(4) That the Cooperation Agreement to which this certificate is attached is in substantially the form as that presented to said meeting.

(5) That if an impression of the seal has been affixed below, it constitutes the official seal of the Boston Redevelopment Authority and this certificate is hereby executed under such official seal.

(6) That Robert F. Kenney is the Director of this Authority.

(7) That the undersigned is duly authorized to execute this certificate.

IN WITNESS WHEREOF the undersigned has hereunto set his hand this thirtieth day of July, 1971.

BOSTON REDEVELOPMENT AUTHORITY

LS

By ______________________
Secretary

PARK PLAZA URBAN RENEWAL PROJECT
BOSTON REDEVELOPMENT AUTHORITY

FINAL PROJECT REPORT
SUPPORTING DOCUMENTATION
PROJECT IMPROVEMENTS REPORT

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PROJECT IMPROVEMENTS REPORT: GENERAL

The Park Plaza Urban Renewal Project is a 35-acre area which is situated between the Back Bay retail and insurance centers to the west and the Chinese Community to the east and between the Public Garden and Boston Common and the department store district of downtown Boston to the north and the South Cove residential, theatre, and medical center district on the south.

Major transportation facilities service the Project Area. There are three subway stations on two lines within the Project, and the Area has convenient vehicular accessibility from the Massachusetts Turnpike, the Fitzgerald Expressway, Storrow Drive, and the primary downtown streets.

The renewal proposed for the Area is designed to retain and intensify many of the activities found at present and to introduce high-rise residential and provide additional hotel and office space, with ancillary parking facilities.

The proposed street adjustments are designed to meet Project requirements for more orderly flow of traffic to, from, and through the Area.

The proposed utility adjustments are compatible with the existing and proposed streets in the Area and are arranged to maintain continuity with the respective systems on the adjacent areas.

The unit costs provided in this report have been derived from comparison with similar current construction work within the region and reflect certain existing conditions in the Project Area. Many of the improvements proposed will occur in narrow congested streets or in streets with dense vehicular traffic. This will result in disruption to construction operations and limit the areas available for continuous work. In addition, the existing streets and utilities have been in place for many years, with some new work added in scattered areas. Construction operations under such conditions will be more expensive, because of irregular and congested utility arrangements and the additional protection required for existing facilities immediately adjacent thereto.

In all the following estimates 10 percent has been allowed for contingencies, 20 percent for the anticipated unit cost increase from present-day unit costs until construction completion, and 16 percent for engineering, for a total of 46 percent.

The initial engineering studies and drawings are in a preliminary stage of development. There are a number of indeterminate factors which could materially increase the costs of Project improvements, especially in sections of the Project where facilities are old and congested. Such cost increases may result from (1) additional requirements to maintain

the system integrity during the construction of various improvements, (2) variation in unconfirmed subsurface locations and conditions of utilities, and (3) unknown factors coincidental to the design and construction of this class of work. Therefore, because of the nature and location of the contemplated improvements, a contingency factor of 10 percent was used.

The Engineering News Record Construction Index has risen from approximately 880 for January 1, 1963, to 1445 for December 1, 1970. This is a total increase of 64 percent for the eight-year period for an average of 8 percent per year. It should be noted that the Construction Cost Index for Boston, Mass., has averaged only 7.2 percent per year from December, 1963, to December, 1970.

Assuming that the major portion of the Project improvements contemplated will occur three years from the present and that the present cost increase rate will continue, the unit cost increase will be 21.5 percent to 24 percent. It does not seem likely that construction costs will increase at a slower rate in the near future, although Project improvements may be installed somewhat earlier; consequently an anticipated unit cost increase of 20 percent has been used.

Engineering cost percentages of total cost of construction used to determine the engineering cost of these Project improvements have been estimated as follows:

(1)	Public Agency Plans (Public Improvement Commission Plans and Land Court Plans),	2 percent
(2)	Delivery Parcel Plans	1 percent
(3)	Construction Plans and Documents	6 percent
(4)	Special Studies (Borings, etc.),	2 percent
(5)	Survey for Line and Grade during Construction	1 percent
(6)	Field Engineering and Inspection	4 percent

The total of 16 percent of the total cost of construction has been used to determine the total cost of the engineering for the Project.

Following is a summary of costs for the various Project improvements.

PROJECT IMPROVEMENTS REPORT: SUMMARY OF COSTS

	Cost Charged to Project	% Contingencies, Unit Cost Incr., Engineering	Total Cost
Demolition and Site Clearance	$2,637,500	15	$3,033,000
Street Adjustments	633,610	46	925,100
Parks and Public Areas	47,500	46	69,400
Street and Park Lighting	218,200	46	318,600
High Service Water System	143,140	46	209,000
Low Service Water System	167,805	46	245,000
High Pressure Fire System	220,420	46	321,800
Surface Drainage System	385,900	46	563,400
Sanitary Drainage System and Interceptor	354,410	46	517,400
Police Signal System) Fire Alarm System)	86,200	46	125,900
Traffic Control System	57,140	46	83,400
Street, Traffic and Directional Signs	18,000	46	26,300
GRAND TOTAL	$4,969,825		$6,438,300

PROJECT IMPROVEMENTS REPORT: DEMOLITION AND SITE CLEARANCE

The following is an explanation of the scope and standards applicable to demolition and site clearance activities.

Site clearance shall include the complete and satisfactory demolition and removal of the buildings and all contents therein. Basements shall be completely cleaned of all unsuitable materials, debris, and all partition walls and supports for the appurtenances to the building.

Foundation wall and supporting columns shall be removed four feet below existing ground where basements are under new or widened streets.

Solid fill, consisting of noncombustible materials, such as brick, stone, and plaster (but not wood lath) shall be used to fill the basement are and shall be placed, rolled, and tamped to within six inches of existing ground. All other materials not used for fill shall be removed from the site and disposed by the contractor.

A minimum of six inches of sanitary fill shall be used to bring the basement areas to existing ground elevation. Final fill shall be rough graded.

Where basement areas are under new or widened streets, the contractor shall fill the last four feet with approved bank run gravel.

PARK PLAZA URBAN RENEWAL PROJECT
BOSTON REDEVELOPMENT AUTHORITY

FINAL PROJECT REPORT
SUPPORTING DOCUMENTATION

PROJECT IMPROVEMENTS REPORT: DEMOLITION AND SITE CLEARANCE
Exhibit A -- Total Cost

	TOTAL COST	CHARGE TO PROJECT %	Amount
Demolition of Buildings	$2,637,500	100	$2,637,500
TOTAL	$2,637,500		$2,637,500
Contingencies, Unit Cost Increase, Engineering - 15%	395,500		395,500
GRAND TOTAL	$3,033,000		$3,033,000

PROJECT IMPROVEMENTS REPORT: DEMOLITION AND SITE CLEARANCE
Exhibit B -- Cost by Parcels

Parcel	Boundary Streets or Lines	Cost
1	Boylston, Park Sq., Providence, Arlington	$ 262,600
2a	Columbus, Eliot, Broadway, Stuart, Church	512,800
2b	Park Sq., Boylston, Carver, Eliot, Stuart, Broadway	134,500
3	Boylston, Boylston Place, Allen's Alley, Tremont, Stuart, Carver	607,000
4	Boylston, Washington, Stuart, Tremont	768,300
5	Essex, Harrison, Northerly and Westerly Property Lines of 19-25 Harrison, Northerly and Westerly Property Lines of 27-39 Harrison, Beach, Knapp, Kneeland, Washington	352,300
	TOTAL	$2,637,500
	Contingencies, Unit Cost Increase, Engineering 15%	395,500
		$3,033,000

USE $3,033,000

PROJECT IMPROVEMENTS REPORT: STREET ADJUSTMENTS

The proposed street rehabilitation and modification program includes the following:

(1) Abandonment of some existing streets to form new parcels for the development proposed.

(2) Reconstruction and widening of existing streets compatible with proposed land use and traffic flow changes in the area.

(3) Construction of new streets to provide improved traffic flow.

(4) Reconstruction of existing street surfaces where extensive utility changes are required.

(5) Resurfacing of existing streets to improve the substandard condition of the wearing surface.

A visual survey was made of all streets and appurtenances in the Project Area. Information on right-of-way, pavement, sidewalk widths, and other matters was obtained from personnel, drawings, and records of the City of Boston Public Works Department, Highway Division. This information, in conjunction with the proposed renewal and traffic changes in the Project, was used as a basis for street improvements

specified in Exhibit "B". All changes are in compliance with standards used by the City of Boston Public Works Department and/or accepted highway standards pertinent to the specific street rating. No vertical or horizontal sight distance deficiencies exist in the present street alignments. The topography of the Project Area is such that modifications to or new alignments for proposed streets will require no major grading to incorporate acceptable vertical and horizontal sight distances.

Traffic flow is highly congested throughout the Project Area. Frequently traffic is nearly at a standstill at many locations and on a number of occasions has been virtually halted in the Project Area. To alleviate and remedy this situation, major revisions are contemplated in the traffic flow and street pattern. In the proposed plan traffic arteries will be established as described below:

EAST -- WEST ARTERIES

Stuart--Kneeland and Providence--Providence Extension Route

From Arlington Street to Providence Street Extension, Stuart Street will be one-directional eastbound, while Providence Street--Providence Street Extension will provide for the westbound traffic. From Providence Street Extension, Stuart--Kneeland will be two-directional, with connections to the J.F. Fitzgerald Expressway and the Massachusetts Turnpike.

Boylston--Essex Route

The traffic pattern on the Boylston--Essex Route will remain as it is at present. From Arlington Street to Charles Street and from Tremont Street to Washington Street, Boylston Street will be one-

directional eastbound while from Charles Street to Tremont Street it will be two-directional. Essex Street from Washington Street to Harrison Avenue will be one-directional eastbound. (Under the Central Business District Boylston--Essex Miniproject, Mass. R-156, Boylston Street at Washington will be realigned to meet the intersection at Essex Street.)

NORTH--SOUTH ARTERIES

Arlington Street

Traffic flow will remain southbound as it is at present, with connecting links from Storrow Drive and to the Massachusetts Turnpike.

New Charles Street

Traffic flow will be northbound through the Project Area.

Tremont Street

Traffic flow will remain southbound through the Project Area, as it is at present.

Washington Street

Between Boylston Street and Stuart-Kneeland, Washington Street traffic flow will be two-directional.

Harrison Avenue

Traffic flow will remain southbound as it is at present.

PROJECT IMPROVEMENTS REPORT: STREET ADJUSTMENTS
Exhibit A -- Total Costs by Streets

STREET	TOTAL COST	CHARGE TO PROJECT %	CHARGE TO PROJECT Amount
Arlington	$54,280	100	$54,280
Beach	4,720	100	4,720
Boylston	144,730	100	144,730
Church	12,080	100	12,080
Columbus Avenue	20,160	100	20,160
Essex	8,610	100	8,610
Harrison Avenue	2,560	100	2,560
Knapp	14,920	100	14,920
Kneeland	35,600	50	17,800
New Charles	53,540	100	53,540
Providence	47,590	100	47,590
Providence Extension	44,440	100	44,440
Stuart	277,500	50	138,750
Tremont	18,940	100	18,940
Washington	50,490	100	50,490
TOTAL	$790,160		$633,610
Contingencies, Unit Cost Increase, Engineering - 46%	363,470		291,490
GRAND TOTAL	$1,153,630		$925,100

PROJECT IMPROVEMENTS REPORT: STREET ADJUSTMENTS
Exhibit B -- Breakdown of Costs by Streets

ARLINGTON STREET

FROM Boylston TO Stuart

TREATMENT: REBUILD

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
Pavement (Rebuild 12-4½-2½ section)	SY	3,000	$11.00	$33,000
Granite Curb (Remove and Reset)	LF	450	3.50	1,575
Granite Curb, Type VA-4, Straight	LF	490	7.00	3,430
Granite Curb, Type VA-4, Curved	LF	50	11.50	575
Concrete Sidewalk, New	SY	1,150	13.65	15,698
				$54,278
Contingencies, Unit Cost Increase, Engineering - 46%				24,968
				$79,246

USE $79,250

BEACH STREET

TREATMENT: RESURFACE

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
Pavement (Resurface 1½" Section)	SY	550	$2.15	$1,183
Granite Curb (Reset Line and Grade)	LF	260	3.10	806
Concrete Sidewalk, Rebuilt	SY	200	13.65	2,730
				$4,719
Contingencies, Unit Cost Increase, Engineering - 46%				2,170
				$6,889

USE $6,900

BOYLSTON STREET

FROM Arlington TO 130' East of New Charles

TREATMENT: REBUILD (Southern Half)

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
Pavement (12-4½-2½ Section) Rebuild	SY	5,600	$11.00	$61,600
Granite Curb, Type VA-4, Straight	LF	920	7.00	6,440
Granite Curb, Type VA-4, Curved	LF	40	11.50	460
Concrete Sidewalk, Rebuilt	SY	1,530	13.65	20,885
				$89,385
Contingencies, Unit Cost Increase, Engineering - 46%				41,117
				$130,502

USE $130,500

BOYLSTON STREET

FROM 130' East of New Charles TO Tremont

TREATMENT: RESURFACE

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
Pavement (1½" Section) Resurface	SY	2,933	$2.15	$6,306
Granite Curb (Reset Line and Grade)	LF	1,170	3.10	3,627
Concrete Sidewalk, Rebuilt	SY	1,600	13.65	21,840
				$31,773
Contingencies, Unit Cost Increase, Engineering - 46%				14,616
				$46,389

USE $46,500

BOYLSTON STREET

FROM Tremont TO Bumstead Court

TREATMENT: REBUILD

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
Pavement (12-4½-2½" Section)	SY	1,417	$11.00	$15,587
Granite Curb (Removed and Reset)	LF	550	3.50	1,925
Concrete Sidewalk, Rebuilt	SY	444	13.65	6,061
				$23,573
Contingencies, Unit Cost Increase, Engineering - 46%				10,844
				$34,417

USE $34,500

CHURCH STREET

FROM Columbus TO Stuart

TREATMENT: REBUILD

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
Pavement (12"-3"-2½" Section) Rebuild	SY	467	$10.00	$ 4,670
Granite Curb, Type VA-4, Straight	LF	120	7.00	840
Granite Curb, Type VA-4, Curved	LF	90	11.50	1,035
Concrete Sidewalk, Rebuilt	SY	405	13.65	5,528
				$12,073
Contingencies, Unit Cost Increase, Engineering - 46%				5,554
				$17,627

USE $17,650

COLUMBUS AVENUE

FROM Stuart TO Church

TREATMENT: REBUILD

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
Pavement (12-3-2½" Section) Rebuild	SY	700	$10.00	$7,000
Granite Curb, Type VA-4, Straight	LF	190	7.00	1,330
Granite Curb, Type VA-4, Curved	LF	200	11.50	2,300
Concrete Sidewalk, Rebuilt	SY	698	13.65	9,528
				$20,158
Contingencies, Unit Cost Increase, Engineering - 46%				9,273
				$29,431

USE $29,500

ESSEX STREET

FROM Washington TO Harrison

TREATMENT: RESURFACE

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
Pavement (1½" Section) Resurface	SY	1,233	$2.15	$2,651
Granite Curb (Reset Line and Grade)	LF	280	3.10	868
Concrete Sidewalk, Rebuilt	SY	373	13.65	5,091
				$8,610
Contingencies, Unit Cost Increase, Engineering - 46%				3,960
				$12,570

USE $12,600

HARRISON AVENUE

FROM Essex TO Kneeland

TREATMENT: REBUILD (Sidewalk Only)

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
Granite Curb (Reset Line and Grade)	LF	120	$3.10	$ 372
Concrete Sidewalk, Rebuilt	SY	160	13.65	2,184
				$2,556
Contingencies, Unit Cost Increase, Engineering - 46%				1,176
				$3,732

USE $3,750

KNAPP STREET

FROM Beach TO Kneeland

TREATMENT: REBUILD

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
Pavement (10"-3"-2½") Rebuild	SY	555	$10.00	$5,550
Granite Curb, Type VA-4, Straight	LF	350	7.00	2,450
Granite Curb, Type VA-4, Curved	LF	140	11.50	1,610
Concrete Sidewalk, Rebuilt	SY	389	13.65	5,310
				$14,920
Contingencies, Unit Cost Increase, Engineering - 46%				6,863
				$21,783

USE $21,800

KNEELAND STREET

FROM Washington TO Knapp

TREATMENT: REBUILD

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
Pavement (12"-4½-2½" Section) Rebuild	SY	1,940	$11.00	$21,340
Granite Curb, Type VA-4, Straight	LF	690	7.00	4,830
Granite Curb, Type VA-4, Curved	LF	80	11.50	920
Concrete Sidewalk, New	SY	300	12.60	3,780
Concrete Sidewalk, Rebuilt	SY	317	13.65	4,327
Median Strip, Asphalt	SY	80	5.00	400
				$35,597
Contingencies, Unit Cost Increase, Engineering - 46%				16,375
				$51,972

USE $52,000

NEW CHARLES STREET

FROM Boylston TO Stuart

TREATMENT: NEW

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
Pavement (12"-4½-2½" Section) New	SY	3,220	$10.00	$32,200
Granite Curb, Type VA-4, Straight	LF	760	7.00	5,320
Granite Curb, Type VA-4, Curved	LF	260	11.50	2,990
Concrete Sidewalk, New	SY	1,034	12.60	13,028
				$53,538
Contingencies, Unit Cost Increase, Engineering - 46%				24,627
				$78,165

USE $78,200

PROVIDENCE STREET

FROM Arlington TO Providence Street Extension

TREATMENT: REBUILD

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
Pavement (12"-4½"-2½" Section) Rebuild	SY	2,298	$10.00	$22,980
Granite Curb, Type VA-4, Straight	LF	760	7.00	5,320
Granite Curb, Type VA-4, Curved	LF	170	11.50	1,955
Concrete Sidewalk, New	SY	394	12.60	4,964
Concrete Sidewalk, Rebuild	SY	906	13.65	12,367
				$47,586
Contingencies, Unit Cost Increase, Engineering - 46%				21,890
				$69,476

USE $69,500

PROVIDENCE STREET EXTENSION

FROM Providence Street TO Stuart Street

TREATMENT: NEW

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
Pavement (12-4½-2½" Section) New	SY	2,158	$10.00	$21,580
Granite Curb, Type VA-4, Straight	LF	370	7.00	2,590
Granite Curb, Type VA-4, Curved	LF	550	11.50	6,325
Concrete Sidewalk, New	SY	1,107	12.60	13,948
				$44,443
Contingencies, Unit Cost Increase, Engineering - 46%				20,444
				$64,887

USE $65,000

STUART STREET

FROM Arlington TO Tremont

TREATMENT: REBUILD

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
Pavement (12-4½-2½" Section) Rebuild	SY	9,864	$11.00	$108,504
Granite Curb, Type VA-4, Straight	LF	2,960	7.00	20,720
Granite Curb, Type VA-4, Curved	LF	770	11.50	8,855
Concrete Sidewalk, Rebuilt	SY	3,767	13.65	51,420
Median Strip, Asphalt	SY	800	5.00	4,000
				$193,499
Contingencies, Unit Cost Increase, Engineering - 46%				89,010
				$282,509

USE: $282,500

STUART STREET

FROM Tremont TO Washington

TREATMENT: REBUILD

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
Pavement (12-4½-2½" Section) Rebuild	SY	4,583	$11.00	$50,413
Granite Curb, Type VA-4, Straight	LF	1,470	7.00	10,290
Granite Curb, Type VA-4, Curved	LF	300	11.50	3,450
Concrete Sidewalk, New	SY	733	12.60	9,236
Concrete Sidewalk, Rebuilt	SY	683	13.65	9,323
Median Strip, Asphalt	SY	256	5.00	1,280
				$84,002
Contingencies, Unit Cost Increase, Engineering - 46%				38,641
				$122,643

USE: $122,700

TREMONT STREET

FROM Boylston TO Stuart

TREATMENT: SIDEWALK RESURFACE

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
Pavement (Resurface 1½" Section)	SY	1,600	$ 2.15	$3,440
Concrete Sidewalk, Rebuilt	SY	928	13.65	12,667
Granite Curb, Type VA-4, Straight	LF	40	7.00	280
Granite Curb, Type VA-4, Curved	LF	100	11.50	1,150
Granite Curb (Removed and Reset)	LF	400	3.50	1,400
				$18,937
Contingencies, Unit Cost Increase, Engineering - 46%				8,711
				$27,648

USE: $27,700

WASHINGTON STREET

FROM 100' South of Essex TO Stuart

TREATMENT: REBUILD

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
Pavement (12-4½-2½" Section) Rebuild	SY	2,505	$11.00	$27,555
Granite Curb, Type VA-4, Straight	LF	780	7.00	5,460
Granite Curb, Type VA-4, Curved	LF	40	11.50	460
Concrete Sidewalk, New	SY	1,350	12.60	17,010
				$50,485
Contingencies, Unit Cost Increase, Engineering - 46%				23,223
				$73,708

USE $73,700

PROJECT IMPROVEMENTS REPORT: STREET ADJUSTMENTS
EXHIBIT C -- Street Unit Costs

BITUMINOUS CONCRETE PAVEMENT - (12-4½-2½" SECTION) - NEW

ITEM	UNIT	QUANTITY PER SY	UNIT COST	TOTAL
Unclassified Excavation	CY	0.50	$4.60	$2.30
Gravel Borrow - 12"	CY	0.33	6.00	2.00
Bituminous Concrete, Type I-1, 4½"	TN	0.25	12.00	3.00
Bituminous Concrete, Type I-1, 2½"	TN	0.14	12.00	1.68
Misc. Calcium Chloride, Grading Rolling and Finishing	-	-	-	.80
				$9.78

USE $10.00

BITUMINOUS CONCRETE PAVEMENT - (12-3-2½" SECTION) - NEW

ITEM	UNIT	QUANTITY PER SY	UNIT COST	TOTAL
Unclassified Excavation	CY	0.50	$4.60	$2.30
Gravel Borrow - 12"	CY	0.33	6.00	2.00
Bituminous Concrete - Type I-1, 3"	TN	0.17	12.00	2.04
Bituminous Concrete - Type I-1, 2½"	TN	0.14	12.00	1.68
Misc. Calcium Chloride, Grading Rolling and Finishing	-	-	-	0.80
				$8.82

USE $9.00 PER SY

BITUMINOUS CONCRETE SURFACE - TYPE I-1-1½" - RESURFACE OF EXISTING SURFACE

ITEM	UNIT	QUANTITY PER SY	UNIT COST	TOTAL
Raising Manholes, Catchbasins, etc.	SY	-	$0.60	$0.60
Cleaning and Preparing Existing Surface	SY	1.0	0.12	0.12
Tack Coat	GL	0.5	0.42	0.21
Bituminous Concrete - Type I-1-1½"	TN	0.08	15.00	1.20
				$2.13

USE $2.15 PER SY

BITUMINOUS CONCRETE PAVEMENT (12-4½-2½" SECTION) - REBUILT

ITEM	UNIT	QUANTITY PER SY	UNIT COST	TOTAL
Existing Street Excavation	SY	$1.00	$3.50	$3.50
Gravel Borrow - 12"	CY	0.33	6.00	2.00
Bituminous Concrete - Type I-1-4½"	TN	0.25	12.00	3.00
Bituminous Concrete - Type I-1-2½"	TN	0.14	12.00	1.68
Misc. Calcium Chloride, Grading Rolling and Finishing	-	-	-	0.80
				$10.98

USE $11.00

BITUMINOUS CONCRETE PAVEMENT (12-3-2½" SECTION) - REBUILT

ITEM	UNIT	QUANTITY PER SY	UNIT COST	TOTAL
Existing Street Excavation	SY	$1.00	$3.50	$3.50
Gravel Borrow - 12"	CY	0.33	6.00	2.00
Bituminous Concrete - Type I-1-3"	TN	0.17	12.00	2.04
Bituminous Concrete - Type I-1-2½"	TN	0.14	12.00	1.68
Misc. Calcium Chloride, Grading Rolling and Finishing	-	-	-	0.80
				$10.02

USE $10.00 PER SY

GRANITE CURB - TYPE VA-4 STRAIGHT

ITEM	UNIT	QUANTITY PER SY	UNIT COST	TOTAL
Granite Curb- Type VA-4, Straight	LF	$1.00	$6.50	$6.50
Crushed Stone Base and Drain	TN	0.07	6.00	0.42
				$6.92

USE $7.00 PER LF

GRANITE CURB - TYPE VA-4 CURVED

ITEM	UNIT	QUANTITY PER SY	UNIT COST	TOTAL
Granite Curb - Type VA-4, Curved	LF	1.00	$11.00	$11.00
Crushed Stone Base and Drain	TN	0.07	6.00	0.42
				$11.42

USE $11.50 PER LF

GRANITE CURB - REMOVED AND RESET

ITEM	UNIT	QUANTITY PER SY	UNIT COST	TOTAL
Granite Curb Removed and Reset	LF	1.00	$3.00	$3.00
Crushed Stone Base and Drain	TN	0.07	6.00	0.42
				$3.42

USE $3.50 PER LF

GRANITE CURB RESET (LINE AND GRADE)

ITEM	UNIT	QUANTITY PER SY	COST	TOTAL
Granite Curb Reset	LF	1.00	$2.34	$2.34
Crushed Stone Base and Drain	TN	0.07	6.00	0.42
Concrete Blocking 6" x 6"	CY	0.01	35.00	0.35
				$3.11

USE $3.10 PER LF

CONCRETE SIDEWALK - 1 COURSE - NEW

ITEM	UNIT	QUANTITY PER SY	UNIT COST	TOTAL
Earth Excavation - 12"	CY	0.33	$4.60	$1.52
Gravel Borrow - 8"	CY	0.22	6.00	1.32
Grading, Rolling and Finishing	SY	1.00	0.75	0.75
Concrete Sidewalk - 1 course	SY	1.00	9.00	9.00
				$12.59

USE $12.60 PER SY

CONCRETE SIDEWALK -- 1 COURSE -- REBUILT

ITEM	UNIT	QUANTITY PER SY	UNIT COST	TOTAL
Concrete Sidewalk Removed	SY	1.00	$2.75	$2.75
Earth Excavation - 4" Average	CY	0.11	4.50	0.49
Gravel Borrow - 4"	CY	0.11	6.00	0.66
Grading, Rolling and Finishing	SY	1.00	0.75	0.75
Concrete Sidewalk - 1 course	SY	1.00	9.00	9.00
				$13.65

USE $13.65 PER SY

BITUMINOUS CONCRETE PAVEMENT (8-2 SECTIONS) MEDIANS

ITEM	UNIT	QUANTITY PER SY	UNIT COST	TOTAL
Earth Excavation - 10"	CY	0.28	$4.60	$1.29
Gravel Borrow - 8"	CY	0.27	6.00	1.62
Grading, Rolling and Finishing	SY	1.00	0.75	0.75
Bituminous Concrete - Type I-1-2"	TN	0.11	12.00	1.32
				$4.98

USE $5.00 PER SY

PAVEMENT REMOVED AND REPLACED

Item	Unit	Quantity Per LF	Unit Cost	Total
Pavement Excavation	SY	0.22	$2.75	$0.61
New Pavement	SY	0.22	12.00	2.64
				$3.25

USE $3.25 PER LF

MISCELLANEOUS ITEMS

Item	Unit	Quantity	Unit Cost	Total
Manhole - In place	Ea.	1	$950.00	$950.00
Manhole - Modified	Ea.	1	200.00	200.00
Standard - Relocated	Ea.	1	300.00	300.00
Standard - Removed	Ea.	1	50.00	50.00
Control Cabinet	Ea.	1	2,000.00	2000.00

PROJECT IMPROVEMENTS REPORT: PARKS AND PUBLIC AREAS

Certain areas in the Project are proposed as parks and public areas. These areas will provide relaxing locations for the shoppers and workers. Cost for lighting the areas has been included under "Street and Park Lighting". All other costs necessary to develop and equip the areas are included in this section.

PROJECT IMPROVEMENTS REPORT: PARKS AND PUBLIC AREAS
Exhibit A -- Total Costs by Areas

LOCATION		TOTAL COST	CHARGE TO PROJECT %	CHARGE TO PROJECT AMOUNT
Area "1"	Arlington and Columbus	$10,350	100	$10,350
Area "2"	Statler Park	4,156	100	4,156
Area "3"	Discontinued Columbus Avenue	25,654	100	25,654
Area "4"	Arlington and Providence	7,340	100	7,340
	TOTAL --	$47,500		$47,500
Contingencies, Unit Cost Increase, Engineering - 46%		21,900		21,900
	GRAND TOTAL	$69,400		$69,400

PARK PLAZA URBAN RENEWAL PROJECT
BOSTON REDEVELOPMENT AUTHORITY

FINAL PROJECT REPORT
SUPPORTING DOCUMENTATION

PROJECT IMPROVEMENTS REPORT: PARKS AND PUBLIC AREAS -
Exhibit B -- Breakdown of Costs by Areas

AREA "1" -- ARLINGTON AND COLUMBUS

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
Street Removal	SY	790	$4.50	$3,555
Concrete Walk	SY	198	13.65	2,703
Loam and Seed	SY	592	4.00	2,368
Park Furnishings	LS	-	-	1,725
				$10,351
Contingencies, Unit Cost Increase, Engineering - 46%				4,761
				$15,112

USE $15,100

AREA "2" -- STATLER PARK

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
Loam and Seed	SY	1039	$4.00	$4,156
				$4,156
Contingencies, Unit Cost Increase, Engineering - 46%				1,912
				$6,068

USE $6,100

AREA "3" -- DISCONTINUED COLUMBUS AVENUE

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
Street Removal	SY	1550	$4.50	$6,975
Concrete Walk	SY	850	13.65	11,603
Loam and Seed	SY	700	4.00	2,800
Park Furnishings	LS	-	-	4,276
				$25,654
Contingencies, Unit Cost Increase, Engineering - 46%				11,801
				$37,455

USE $37,500

AREA "4" -- ARLINGTON AND PROVIDENCE

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
Street Removal	SY	400	$4.50	$1,800
Concrete Walk	SY	250	13.65	3,410
Loam and Seed	SY	165	4.00	660
Park Furnishings	LS	-	-	1,470
				$7,340
Contingencies, Unit Cost Increase, Engineering - 46%				3,380
				$10,720

USE $10,800

PARK PLAZA URBAN RENEWAL PROJECT
BOSTON REDEVELOPMENT AUTHORITY

FINAL PROJECT REPORT
SUPPORTING DOCUMENTATION

PROJECT IMPROVEMENTS REPORT: PARKS AND PUBLIC AREAS
Exhibit C -- Unit Costs

EXISTING STREET REMOVAL

ITEM	UNIT	QUANTITY PER SY	UNIT COST	TOTAL
Pavement and Sidewalk Removal	SY	1.00	$2.75	$2.75
Roadway Excavation, 18" Average	CY	0.50	3.50	1.75
				$4.50

USE $4.50

CONCRETE WALK

ITEM	UNIT	QUANTITY PER SY	UNIT COST	TOTAL
Special Concrete Surface	SY	1.00	$10.00	$10.00
Scoring	SY	1.00	1.85	1.85
Gravel Borrow - 8"	CY	0.22	4.50	0.99
Grading, Rolling, and Finishing	SY	1.00	0.80	0.80
				$13.64

USE $13.64 PER SY

LOAM AND SEED

ITEM	UNIT	QUANTITY PER SY	UNIT COST	TOTAL
Bank Gravel Borrow 6"	CY	0.17	$4.50	$0.77
Grading	SY	1.00	0.75	0.75
Loam - 6"	CY	0.27	7.00	1.89
Seed	SY	1.00	0.30	0.30
Fertilizer	SY	1.00	0.10	0.10
Mulch	SY	1.00	0.10	0.10
				$3.91

USE $4.00 PER SY

PARK PLAZA URBAN RENEWAL PROJECT
BOSTON REDEVELOPMENT AUTHORITY

FINAL PROJECT REPORT
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PROJECT IMPROVEMENTS REPORT: STREET AND PARK LIGHTING

The existing lighting system consists of a combination of wooden standards with a top-mounted fixture and new concrete standards with cantilever fixtures. New units have been installed in recent years in accordance with the latest spacing and intensities as specified by the City of Boston Public Works Department, Lighting Division. Some of the Project Area is serviced by the wooden type standards of inadequate intensity and spacing. A few streets, using the new lighting standards, are adequately lighted. Other streets using the new lighting standards do not have proper spacing and sufficient intensity.

All existing lighting that does not comply with current specifications will be removed and replaced. New light standards will be the same for single or twin unit luminaires. Lamp brackets will be 6 or 12 feet long dependent upon location requirements. The lighting units will be mercury-vapor luminaires utilizing 400 watts (20,000 lumens) and 250 watts (10,500 lumens) and mercury-vapor luminaires, globe units, 150 watts.

Power supply is provided for the lighting system through conduits and cables installed in the existing streets and serviced by the Boston Edison Company for the City of Boston. New conduits and/or cables will be installed where required by additional lighting or street relocation. New and/or supplementary lighting will be installed in accordance with the

following specifications of the City of Boston Public Works Department, Lighting Division, to conform with the class of intended use.

Class	Description	Lumens per lin. ft.	Initial Vapor Lumens
	Major Streets		
A	Very heavy vehicular and/or pedestrian traffic, bus routes, or four or more traffic lanes	250-300	20,000
B	Moderate to heavy vehicular and/or pedestrian traffic or bus routes	40-90	11,000

The greatest portion of the Project Area will be illuminated with Class A lighting, as it is predominantly a commercial area with very heavy pedestrian and vehicular traffic. Some of the existing concrete standards will be replaced because of poor spacing and also because of their unsatisfactory physical condition.

PARK PLAZA URBAN RENEWAL PROJECT
BOSTON REDEVELOPMENT AUTHORITY

FINAL PROJECT REPORT
SUPPORTING DOCUMENTATION

PROJECT IMPROVEMENTS REPORT: STREET AND PARK LIGHTING
Exhibit A -- *Total Costs by Streets*

STREET	TOTAL COST	CHARGE TO PROJECT %	CHARGE TO PROJECT Amount
Arlington	$ 28,840	100	$ 28,840
Beach	6,900	100	6,900
Boylston	62,200	100	62,200
Columbus Avenue	11,645	100	11,645
Essex	9,210	100	9,210
Knapp	7,880	100	7,880
Kneeland	7,400	50	3,700
New Charles	17,750	100	17,750
Providence	8,250	100	8,250
Providence Extension	12,880	100	12,880
Stuart	68,280	50	34,140
Tremont	2,690	100	2,690
Washington	12,115	100	12,115
TOTAL	$256,040		$218,200
Contingencies, Unit Cost Increase, Engineering - 46%	117,[illegible]		100,400
GRAND TOTAL	$373,[illegible]		$318,600

PROJECT IMPROVEMENTS REPORT: STREET AND PARK LIGHTING
Exhibit B -- Breakdown of Costs by Streets

ARLINGTON STREET

FROM Stuart TO Boylston

Item	Unit	Quantity	Unit Cost	Total
Lighting Standard, single luminaire in place	Ea.	10	$ 640.00	$ 6,400
Lighting Standard, double luminaire in place	Ea.	1	910.00	910
Lighting Standard, single or double, Remove	Ea.	13	50.00	650
Main Conduit and Cable in place	L.F.	1,250	10.30	12,875
Lateral Conduit and Cable in place	L.F.	180	7.80	1,404
Distribution Manhole, New	Ea.	4	950.00	3,800
Distribution Manhole, Modified	Ea.	4	200.00	800
Control Cabinet	Ea.	1	2,000.00	2,000
				$28,839
Contingencies, Unit Cost Increase, Engineering - 4[illegible]%				12,266
				$41,105

USE $41,100

BEACH STREET

Item	Unit	Quantity	Unit Cost	Total
Lighting Standard, single luminaire in place	Ea.	2	$ 640.00	$ 1,280
Lighting Standard, single or double, Remove	Ea.	1	50.00	50
Main Conduit and Cable in place	L.F.	250	10.30	2,575
Lateral Conduit and Cable in place	L.F.	75	7.80	585
Distribution Manhole, New	Ea.	1	950.00	950
Distribution Manhole, Modified	Ea.	2	200.00	400
Pavement, Remove and Replace	L.F.	325	3.25	1,056
				$ 6,896
Contingencies, Unit Cost Increase, Engineering - 46%				3,172
				$10,068

USE $10,100

BOYLSTON STREET

FROM Arlington TO Tremont

Item	Unit	Quantity	Unit Cost	Total
Lighting Standard, single luminaire in place	Ea.	14	$ 640.00	$ 8,960
Lighting Standard, double luminaire in place	Ea.	7	910.00	6,370
Lighting Standard, single or double, Remove	Ea.	25	50.00	1,250
Main Conduit and Cable in place	L.F.	2,930	10.30	30,179
Lateral Conduit and Cable in place	L.F.	315	7.80	2,457
Distribution Manhole, New	Ea.	8	950.00	7,600
Distribution Manhole, Modified	Ea.	8	200.00	1,600
Pavement, Remove and Replace	L.F.	800	3.25	2,600
				$61,016
Contingencies, Unit Cost Increase, Engineering - 46%				28,067
				$89,083

USE $89,100

BOYLSTON STREET

FROM Tremont TO Bumstead Ct.

Item	Unit	Quantity	Unit Cost	Total
Lighting Standard, single or double, Remove and Reset	Ea.	3	$ 300.00	$ 900
Lighting Standard, single or double, Remove	Ea.	1	50.00	50
Lateral Conduit and Cable in place	L.F.	30	7.80	234
				$ 1,184
Contingencies, Unit Cost Increase, Engineering - 46%				545
				$ 1,729

USE $1,730

COLUMBUS AVENUE

Item	Unit	Quantity	Unit Cost	Total
Lighting Standard, single luminaire in place	Ea.	2	$ 640.00	$ 1,280
Lighting Standard, single or double, Remove	Ea.	6	50.00	300
Standard - Single Globe Unit Replacing Wood Standard	Ea.	8	405.00	3,240
Main Conduit and Cable in place	L.F.	300	10.30	3,090
Lateral Conduit and Cable in place	L.F.	75	7.80	585
Distribution Manhole, New	Ea.	1	950.00	950
Distribution Manhole, Modified	Ea.	1	200.00	200
Control Cabinet	Ea.	1	2,000.00	2,000
				$11,645
Contingencies, Unit Cost Increase, Engineering - 46%				5,357
				$17,002

USE $17,000

ESSEX STREET

FROM Washington TO Harrison Avenue

Item	Unit	Quantity	Unit Cost	Total
Lighting Standard, single luminaire in place	Ea.	3	$ 640.00	$ 1,920
Lighting Standard, single or double, Remove	Ea.	1	50.00	50
Main Conduit and Cable in place	L.F.	330	10.30	3,399
Lateral Conduit and Cable in place	L.F.	60	7.80	468
Distribution Manhole, New	Ea.	2	950.00	1,900
Distribution Manhole, Modified	Ea.	1	200.00	200
Pavement, Remove and Replace	L.F.	390	3.25	1,268
				$ 9,205
Contingencies, Unit Cost Increase, Engineering - 46%				4,234
				$13,439

USE $13,500

KNAPP STREET

FROM Beach TO Kneeland

Item	Unit	Quantity	Unit Cost	Total
Lighting Standard, single luminaire in place	Ea.	2	$ 640.00	$ 1,280
Main Conduit and Cable in place	L.F.	200	10.30	2,060
Lateral Conduit and Cable in place	L.F.	30	7.80	234
Distribution Manhole, New	Ea.	2	950.00	1,900
Distribution Manhole, Modified	Ea.	2	200.00	400
Control Cabinet	Ea.	1	2,000.00	2,000
				$ 7,874
Contingencies, Unit Cost Increase, Engineering - 46%				3,622
				$11,496

USE $11,500

KNEELAND STREET

FROM Washington TO Knapp

Item	Unit	Quantity	Unit Cost	Total
Lighting Standard, single luminaire in place	Ea.	1	$ 640.00	$ 640
Lighting Standard, double luminaire in place	Ea.	1	910.00	910
Lighting Standard, single or double Remove	Ea.	2	50.00	100
Main Conduit and Cable in place	L.F.	300	10.30	3,090
Lateral Conduit and Cable in place	L.F.	45	7.80	351
Distribution Manhole, New	Ea.	2	950.00	1,900
Distribution Manhole, Modified	Ea.	2	200.00	400
				$ 7,391
Contingencies, Unit Cost Increase, Engineering - 46%				3,400
				$10,791

USE $10,800

NEW CHARLES STREET

FROM Boylston TO Stuart

Item	Unit	Quantity	Unit Cost	Total
Lighting Standard, single luminaire in place	Ea.	6	$ 640.00	$ 3,840
Lighting Standard, single or double, Remove	Ea.	3	50.00	150
Main Conduit and Cable in place	L.F.	850	10.30	8,755
Lateral Conduit and Cable in place	L.F.	90	7.80	702
Distribution Manhole, New	Ea.	2	950.00	1,900
Distribution Manhole, Modified	Ea.	2	200.00	400
Control Cabinet	Ea.	1	2,000.00	2,000
				$17,747
Contingencies, Unit Cost Increase, Engineering - 46%				8,164
				$25,911

USE $26,000

PROVIDENCE STREET

FROM Arlington TO Providence Street Extension

Item	Unit	Quantity	Unit Cost	Total
Lighting Standard, single luminaire in place	Ea.	4	$ 640.00	$ 2,560
Lighting Standard, single or double, Remove	Ea.	8	50.00	400
Main Conduit and Cable in place	L.F.	470	10.30	4,841
Lateral Conduit and Cable in place	L.F.	100	7.80	780
Distribution Manhole, New	Ea.	2	950.00	1,900
Distribution Manhole, Modified	Ea.	2	200.00	400
Control Cabinet	Ea.	1	2,000.00	2,000
				$12,881
Contingencies, Unit Cost Increase, Engineering - 46%				5,925
				$18,806

USE $19,000

PROVIDENCE STREET EXTENSION

FROM Providence TO Stuart

Item	Unit	Quantity	Unit Cost	Total
Lighting Standard, single luminaire in place	Ea.	3	$ 640.00	$ 1,920
Lighting Standard, single or double, Remove	Ea.	1	50.00	50
Main Conduit and Cable in place	L.F.	360	10.30	3,708
Lateral Conduit and Cable in place	L.F.	60	7.80	468
Distribution Manhole, New	Ea.	2	950.00	1,900
Distribution Manhole, Modified	Ea.	1	200.00	200
				$ 8,246
Contingencies, Unit Cost Increase, Engineering - 46%				3,793
				$12,039

USE $12,100

STUART STREET

FROM Arlington TO Tremont

Item	Unit	Quantity	Unit Cost	Total
Lighting Standard, single luminaire in place	Ea.	15	$ 640.00	$ 9,600
Lighting Standard, double luminaire in place	Ea.	4	910.00	3,640
Lighting Standard, single or double, Remove	Ea.	11	50.00	550
Main Conduit and Cable in place	L.F.	2,100	10.30	21,630
Lateral Conduit and Cable in place	L.F.	380	7.80	2,964
Distribution Manhole, New	Ea.	7	950.00	6,650
Distribution Manhole, Modified	Ea.	7	200.00	1,400
Control Cabinet	Ea.	1	2,000.00	2,000
				$48,434
Contingencies, Unit Cost Increase, Engineering - 46%				22,280
				$70,714

USE $70,800

STUART STREET

FROM Tremont TO Washington

Item	Unit	Quantity	Unit Cost	Total
Lighting Standard, single luminaire in place	Ea.	5	$ 640.00	$ 3,200
Lighting Standard, double luminaire in place	Ea.	3	910.00	2,730
Lighting Standard, single or double, Remove	Ea.	6	50.00	300
Main Conduit and Cable in place	L.F.	1,000	10.30	10,300
Lateral Conduit and Cable in place	L.F.	130	7.80	1,014
Distribution Manhole, New	Ea.	2	950.00	1,900
Distribution Manhole, Modified	Ea.	2	200.00	400
				$19,844
Contingencies, Unit Cost Increase, Engineering - 46%				9,128
				$28,972

USE $29,000

TREMONT STREET

FROM Stuart TO Boylston

Item	Unit	Quantity	Unit Cost	Total
Lighting Standard, single luminaire in place	Ea.	1	$ 640.00	$ 640
Main Conduit and Cable in place	L.F.	50	10.30	515
Lateral Conduit and Cable in place	L.F.	20	7.80	156
Distribution Manhole, New	Ea.	1	950.00	950
Distribution Manhole, Modified	Ea.	1	200.00	200
Pavement, Remove and Replace	L.F.	70	3.25	228
				$ 2,689
Contingencies, Unit Cost Increase, Engineering - 46%				1,237
				$ 3,926

USE $4,000

WASHINGTON STREET

FROM 100' South of Essex TO Kneeland

Item	Unit	Quantity	Unit Cost	Total
Lighting Standard, single luminaire in place	Ea.	4	$ 640.00	$ 2,560
Lighting Standard, single or double, Remove	Ea.	3	50.00	150
Main Conduit and Cable in place	L.F.	450	10.30	4,635
Lateral Conduit and Cable in place	L.F.	60	7.80	468
Distribution Manhole, New	Ea.	2	950.00	1,900
Distribution Manhole, Modified	Ea.	2	200.00	400
Control Cabinet	Ea.	1	2,000.00	2,000
				$12,113
Contingencies, Unit Cost Increase, Engineering - 46%				5,572
				$17,685

USE $17,700

PROJECT IMPROVEMENTS REPORT: STREET AND PARK LIGHTING
Exhibit C -- Unit Costs

STANDARD - SINGLE LUMINAIRE

Item	Unit	Quantity Per Ea.	Unit Cost	Total
Standard - In Place	Ea.	1	$330.00	$330.00
Luminaire Unitized 150-400 Watts MV Built-in Ballast and Photo Cell	Ea.	1	210.00	210.00
Lamp Bracket - 6'	Ea.	1	60.00	60.00
Cable 2 #10-Lamp Lead	L.F.	30	1.00	30.00
Quarter Bend	Ea.	1	10.00	10.00
				$640.00

USE $640 Ea.

STANDARD - DOUBLE LUMINAIRE

Item	Unit	Quantity Per Ea.	Unit Cost	Total
Standard - In Place	Ea.	1	$330.00	$330.00
Luminaire Unitized 150-400 Watts MV Built-in Ballast and Photo Cell	Ea.	2	210.00	420.00
Lamp Bracket - 6'	Ea.	2	60.00	120.00
Cable 2 #10-Lamp Lead	L.F.	30	1.00	30.00
Quarter Bend	Ea.	1	10.00	10.00
				$910.00

USE $910 Ea.

STANDARD-SINGLE GLOBE UNIT REPLACING WOOD STANDARD

Item	Unit	Quantity Per Ea.	Unit Cost	Total
Standard - Post and Base	Ea.	1	$240.00	$240.00
Luminaire: 24" Globe Unit, Mercury-Vapor, 150 Watts	Ea.	1	100.00	100.00
Cable	LF	15	1.00	15.00
Remove Existing Standard	Ea.	1	50.00	50.00
				$405.00

USE $405 EA

LATERAL CONDUIT AND CABLE

Item	Unit	Quantity Per LF	Unit Cost	Total
Conduit 2" Steel	LF	1	$3.50	$3.50
Cable	LF	1	2.50	2.50
Trench Excavation	CY	0.19	5.00	0.95
Gravel Back Fill	CY	0.19	4.50	0.85
				$7.80

USE $7.80 PER LF

MAIN CONDUIT AND CABLE

Item	Unit	Quantity Per LF	Unit Cost	Total
Conduit - 3" Steel	LF	1	$4.50	$4.50
Cable	LF	1	4.00	4.00
Trench Excavation	CY	0.19	5.00	.95
Gravel Backfill	CY	0.19	4.50	.85
				$10.30

USE $10.30 PER LF

PROJECT IMPROVEMENTS REPORT: HIGH SERVICE WATER

The existing high service water system is the principal water supply system in the area. It supplies water for domestic and commercial uses and also affords building fire protection in the area. This system gives complete coverage to the existing Project Area. The existing system is installed in a grid pattern and is supplied from M.D.C. high service mains. The western section is supplied by a 20" main located in Boylston Street and a 16" main located in Columbus Avenue. The system will be expanded to complete the grid pattern in compliance with the proposed street adjustment. New piping will be installed wherever condition of pipe or capacity is questionable or wherever records indicate a history of physical failure. Larger diameter mains will be installed where necessary to provide better distribution in the grid network.

The City of Boston Public Works Department, Water Division, has complete jurisdiction of all water systems in the renewal Project. The established policy standardizes the material used in both the low and the high service water systems and provides division gate valves between each system to allow for flexibility of use. The proposed changes in the high service water system comply with the standards established by the City of Boston Public Works Department, Water Division, and recommendations published by the American Water Works Association.

PROJECT IMPROVEMENTS REPORT: HIGH SERVICE WATER
Exhibit A -- Total Costs by Streets

STREET	TOTAL COST	CHARGE TO PROJECT %	CHARGE TO PROJECT AMOUNT
Arlington	$8,810	100	$8,810
Boylston	9,360	100	9,360
Kneeland	22,500	50	11,250
New Charles	31,450	100	31,450
Providence	25,470	100	25,470
Stuart (Arlington to Tremont)	38,750	100	38,750
Stuart (Tremont to Washington	12,080	50	6,040
Washington	12,010	100	12,010
TOTAL	$160,430		$143,140
Contingencies, Unit Cost Increase, Engineering - 46%	73,800		65,860
GRAND TOTAL	$234,230		$209,000

PARK PLAZA URBAN RENEWAL PROJECT
BOSTON REDEVELOPMENT AUTHORITY

FINAL PROJECT REPORT
SUPPORTING DOCUMENTATION

PROJECT IMPROVEMENTS REPORT: HIGH SERVICE WATER
Exhibit B -- Breakdown of Costs by Streets

ARLINGTON STREET

From Boylston Street to Stuart Street

Item	Unit	Quantity	Unit Cost	Total
12" Pipe, C.I., Class 250 in place	L. Ft.	190	$ 30.60	$5,814
12" Gate Valve with Box	Ea.	1	1,500.00	1,500
Connection to Existing Main	Ea.	2	250.00	500
Plug and Abandon Existing 12" Main	Ea.	1	1,000.00	1,000
				$8,814
Contingencies, Unit Cost Increase, Engineering - 46%				4,054
USE $12,900				$12,868

BOYLSTON STREET

From Charles Street to Tremont Street

Item	Unit	Quantity	Unit Cost	Total
12" Pipe, C.I., Class 250 in place	L. Ft.	175	$30.60	$5,355
12" Gate Valve with Box	Ea.	1	1,500.00	1,500
Connection to Existing Main	Ea.	2	250.00	500
Plug and Abandon Existing 12" Main	Ea.	2	1,000.00	2,000
				$9,355
Contingencies, Unit Cost Increase, Engineering - 46%				4,303
				$13,65[illegible]

USE 13,700

KNEELAND STREET

From Washington Street to Harrison Avenue

Item	Unit	Quantity	Unit Cost	Total
12" Pipe, C.I., Class 250 in place	L. Ft.	670	$ 30.60	$20,502
12" Gate Valve with Box	Ea.	1	1,500.00	1,500
Connection to Existing Main	Ea.	2	250.00	500
				$22,502
Contingencies, Unit Cost Increase, Engineering - 46%				10,351
				$32,853

USE $33,000

NEW CHARLES STREET

From Boylston Street to Stuart Street

Item	Unit	Quantity	Unit Cost	Total
16" Pipe, C.I., Class 250 in Place	L. Ft.	580	$ 40.00	$23,200
16 12" Gate Valve with Box	Ea.	2	2,500.00	5,000
Connection to Existing Main	Ea.	1	250.00	250
Plug and Abandon Existing 12" Main	Ea.	3	1,000.00	3,000
				$31,450
Contingencies, Unit Cost Increase, Engineering - 46%				14,467
				$45,917

USE $46,000

PROVIDENCE STREET

From Arlington Street to Columbus Avenue

Item	Unit	Quantity	Unit Cost	Total
12" Pipe, C.I., Class 250 in place	L. Ft.	620	$ 30.60	$18,972
12" Gate Valve with Box	Ea.	2	1,500.00	3,000
Connection to Existing Main	Ea.	2	250.00	500
Plug and Abandon Existing 12" Main	Ea.	3	1,000.00	3,000
				$25,472
Contingencies, Unit Cost Increase, Engineering - 46%				11,717
				$37,189

USE $37,200

STUART STREET

From Arlington Street to Tremont

Item	Unit	Quantity	Unit Cost	Total
16" Pipe, C.I., Class 250 in place	L. Ft.	850	$ 40.00	$34,000
16" Gate Valve with Box	Ea.	1	2,500.00	2,500
Connection to Existing Main	Ea.	1	250.00	250
Plug and Abandon Existing 48" Main	Ea.	1	2,000.00	2,000
				$38,750
Contingencies, Unit Cost Increase, Engineering - 46%				17,825
				$56,575

USE $56,600

STUART STREET

From Tremont Street to Washington Street

Item	Unit	Quantity	Unit Cost	Total
12" Pipe, C.I., Class 250 in Place	L. Ft.	305	$ 30.60	$9,333
12" Gate Valve with Box	Ea.	1	1,500.00	1,500
Connection to Existing Main	Ea.	1	250.00	250
Plug and Abandon Existing 12" Main	Ea.	1	1,000.00	1,000
				$12,083
Contingencies, Unit Cost Increase, Engineering - 46%				5,558
				$17,641

USE $17,700

WASHINGTON STREET

From Boylston Street to Stuart Street

Item	Unit	Quantity	Unit Cost	Total
12" Pipe, C.I., Class 250 in Place	L.Ft.	270	$ 30.60	$8,262
12" Gate Valve with Box	Ea.	1	1,500.00	1,500
Connection to Existing Main	Ea.	1	250.00	250
Plug and Abandon Existing 12" Main	Ea.	2	1,000.00	2,000
				$12,012
Contingencies, Unit Cost Increase, Engineering - 46%				5,526
				$17,538

USE $17,600

PARK PLAZA URBAN RENEWAL PROJECT
BOSTON REDEVELOPMENT AUTHORITY

FINAL PROJECT REPORT
SUPPORTING DOCUMENTATION

PROJECT IMPROVEMENTS REPORT:	HIGH SERVICE WATER SYSTEM
Exhibit C --	Unit Costs

FOR DETAILED EXHIBIT C

SEE "LOW SERVICE WATER SYSTEM"

PROJECT IMPROVEMENTS REPORT: LOW SERVICE WATER

The low service water system supplements the high service system in the area east of Washington Street and south of Boylston and Essex Streets. The existing low service water system is installed in a grid pattern and is supplied from the M.D.C. low service mains by a 48" main in Columbus Avenue and a 20" main in Washington Street. The existing low service water system will be modified to comply with the proposed street adjustments. Undersized piping will be replaced by new larger piping. New larger piping will by installed in the perimeter main where necessary to provide better distribution in the grid network.

The City of Boston Public Works Department, Water Division, has complete jurisdiction of all water systems in the renewal Project. The established policy standardizes the material used in both the low and the high service systems and provides division gate valves between each system to allow for flexibility of use. The proposed changes in the low service system comply with the standards established by the City of Boston Public Works Department, Water Division, and recommendations published by the American Water Works Association.

PROJECT IMPROVEMENTS REPORT: LOW SERVICE WATER
Exhibit A -- Total Costs by Streets

STREET	TOTAL COST	CHARGE TO PROJECT %	CHARGE TO PROJECT Amount
Boylston Street	$ 9,120	100	$ 9,120
New Charles	65,670	100	65,670
Stuart Street (Arlington to Charles)	74,200	100	74,200
Stuart Street (Arlington to Tremont)	37,630	50	18,815
TOTAL	$186,620		$167,805
Contingencies, Unit Cost Increase, Engineering - 46%	85,850		77,195
GRAND TOTAL	$272,470		$245,000

PROJECT IMPROVEMENTS REPORT: LOW SERVICE WATER
Exhibit B -- Breakdown of Costs by Streets

BOYLSTON STREET

From Tremont St. to Washington St.

Item	Unit	Quantity	Unit Cost	Total
12" pipe, C.I., class 250 in place	L.F.	200	$ 30.60	$ 6,120
12" gate valve w/box	Ea.	1	1,500.00	1,500
Connection to Exist. Main	Ea.	2	250.00	500
Plug & Abandon Exist. 8" Main	Ea.	1	1,000.00	1,000
				$ 9,120
Contingencies, Unit Cost Increase, Engineering - 46%				4,195
				$13,315

USE $13,400

NEW CHARLES STREET

From Boylston St. to Stuart St.

Item	Unit	Quantity	Unit Cost	Total
48" pipe, Ductile Iron in place	L.F.	520	85.00	$ 44,200
Connection to Exist. Main	Ea.	1	1,500.00	1,500
Plug & Abandon Exist. 12" and 16" Mains	Ea.	2	1,000.00	2,000
12" pipe, C.I., Class 250 in place	L.F.	530	30.60	16,218
12" Gate Valve w/Box	Ea.	1	1,500.00	1,500
Connection to Exist. Main	Ea.	1	250.00	250
				$ 65,668
Contingencies Unit Cost Increase, Engineering - 46%				30,207
				$ 95,875

USE $ 95,900

STUART STREET

From Arlington St. to Charles St.

Item	Unit	Quantity	Unit Cost	Total
48" pipe, Ductile Iron, in place	L.F.	720	8,500	$ 61,200
48" Gate Valve	Ea.	1	9,000	9,000
Connection to Exist. Main	Ea.	2	1,500	3,000
Plug & Abandon Exist. 16" Main	Ea.	1	1,000	1,000
				$ 74,200
Contingencies, Unit Cost Increase, Engineering - 46%				34,132
				$108,332

USE $ 108,400

STUART STREET

From Arlington St. to Tremont St.

Item	Unit	Quantity	Unit Cost	Total
12" pipe, C.I., class 250 in place	L.F.	1140	30.60	$ 34,884
12" gate valves w/box	Ea.	1	1,500.00	1,500
Connection to Exist. Main	Ea.	2	250.00	250
Plug & Abandon Exist. 12" main	Ea.	1	1,000.00	1,000
				$ 37,634
Contingencies, Unit Cost Increase, Engineering - 46%				17,312
				$ 54,946

USE $55,000

PROJECT IMPROVEMENTS REPORT: HIGH AND LOW SERVICE WATER
Exhibit C -- Unit Costs

12" C.I. (Cement Lined)

Item	Unit	Quantity	Unit Cost	Total
12" C. I. (Cement Lined) in place w/fitting allow.	L.F.	1.00	21.50	$21.50
Trench Excavation & Backfill	C.F.	1.18	3.40	4.01
Bedding Material	C.Y.	0.11	5.00	0.55
Pavement Removal	S.Y.	0.67	1.70	1.14
Base Course Material	C.Y.	0.20	3.00	0.60
New Pavement	S.Y.	0.67	4.20	2.80
				$30.60

USE $30.60 per L.F.

16" C.I. (Cement Lined)

Item	Unit	Quantity Per L.F.	Unit Cost	Total
16" C.I. (Cement Lined) in place w/fitting allow.	L.F.	1.00	30.00	$ 30.00
Trench Excavation & Backfill	C.Y.	1.28	3.40	4.35
Bedding Material	C.Y.	0.17	5.00	0.85
Pavement Removal	S.Y.	0.71	1.70	1.21
Base Course Material	C.Y.	0.21	3.00	0.63
New Pavement	S.Y.	0.71	4.20	2.98
				$ 40.02

USE $ 40.00 PER L.F.

36" DUCTILE IRON PIPE

Item	Unit	Quantity	Unit Cost	Total
36" Ductile Iron Pipe in place w/fitting allow.	L.F.	1.00	55.00	$55.00
Trench Excavation & Backfill	C.Y.	2.18	3.40	7.41
Bedding Material	C.Y.	0.51	5.00	2.55
Pavement Removal	S.Y.	1.11	1.70	1.89
Base Course Material	C.Y.	0.33	3.00	1.00
New Pavement	S.Y	1.11	4.20	4.66
				$72.51

USE $ 72.50 PER L.F.

48" DUCTILE IRON PIPE

Item	Unit	Quantity	Unit Cost	Total
48" Ductile Iron Pipe in place w/fitting allow.	L.F.	1.00	59.50	$ 59.50
Trench-Excavation & Backfill	C.Y.	3.15	3.40	10,71
Bedding Material	C.Y.	0.96	5.00	4.80
Pavement Removal	S.Y.	1.42	1.70	2.41
Base Course Material	C.Y.	0.53	3.00	1.59
New Pavement	S.Y.	1.42	4.20	5.96
				$ 84.97

USE $ 85.00 PER L.F.

PROJECT IMPROVEMENTS REPORT: HIGH PRESSURE FIRE SYSTEM

The existing high pressure fire system protects the portion of the Project Area east of Tremont Street. The system was installed in 1898 as a salt water system and later converted and expanded through 1931 to the present high pressure fire system. The present system is supplied by a main in Kneeland Street from Pumping Station No. 1. The system will be expanded to complete the grid pattern in compliance with the proposed street adjustments. New piping will be installed wherever condition of pipe or capacity is questionable or wherever records indicate a history of physical failure. The existing system will also be expanded to include the western portion of the Project Area which is bounded by New Charles Street, Boylston Street, Arlington Street, and Stuart Street. This area lacks high pressure fire service protection at the present.

The City of Boston Public Works Department Water Division has jurisdiction over all water systems in the area.

The material (specifications pipe - A.W.W.A., Class H) used for the expansion of the high pressure fire system is the same as that presently installed. The changes in the system conform or are equal to the standards used by the City of Boston Public Works Department, Water Division.

PROJECT IMPROVEMENTS REPORT: HIGH PRESSURE FIRE SYSTEM
Exhibit A -- Total Costs by Streets

STREET	TOTAL COST	CHARGE TO PROJECT %	CHARGE TO PROJECT Amount
Arlington Street	$ 30,400	100	$ 30,400
Boylston Street	78,200	100	78,200
New Charles	28,000	100	28,000
Harrison Avenue	9,370	100	9,370
Knapp Street	13,700	100	13,700
Stuart Street	60,750	100	60,750
TOTAL	$220,420		$220,420
Contingencies, Unit Cost Increase, Engineering - 46%	101,380		101,380
GRAND TOTAL	$321,800		$321,800

PROJECT IMPROVEMENTS REPORT: HIGH PRESSURE FIRE SYSTEM
Exhibit B -- Breakdown of Costs by Streets

ARLINGTON STREET

FROM Boylston TO Stuart Street

Item	Unit	Quantity	Unit Cost	Total
16" pipe, C.I., class 250 in place	L.Ft.	660	$ 40.00	$26,400
16" gate valves w/Box.	Ea.	1	2,500.00	2,500
Fire Hydrant w/6" Aux. Valve	Ea.	1	1,500.00	1,500
				$30,400
Contingencies, Unit Cost Increase, Engineering - 46%				13,984
				$44,384

USE $44,400

BOYLSTON STREET

FROM Arlington St. TO Charles St.

Item	Unit	Quantity	Unit Cost	Total
16' pipe, C.I., class 250 in place	L. Ft.	1000	$ 40.00	$40,000
16" gate valves w/box.	Ea.	2	2,500.00	5,000
Fire Hydrant w/6" Aux. Valve	Ea.	1	1,500.00	1,500
Connection to Exist. Main	Ea.	2	250.00	500
Plug and Abandon Exist. 16" Main	Ea.	1	1,000.00	1,000
				$48,000
Contingencies, Unit Cost Increase, Engineering - 46%				22,080
				$70,080

USE $70,100

BOYLSTON STREET

FROM Tremont St. TO Washington St.

Item	Unit	Quantity	Unit Cost	Total
16" pipe, C.I. class 250 in place	L.Ft.	580	40.00	$23,200
16" gate valves w/box.	Ea.	2	$ 2,500.00	5,000
Fire Hydrant w/6" Aux. Valve	Ea.	1	1,500.00	1,500
Connection to Exist. Main	Ea.	2	250.00	500
				$30,200
Contingencies, Unit Cost Increase, Engineering - 46%				13,892
				$44,092

USE $44,100

NEW CHARLES STREET

FROM Boylston St. TO Stuart St.

Item	Unit	Quantity	Unit Cost	Total
16" pipe, C.I., class 250 in place	L.Ft.	600	$ 40.00	$24,000
16" gate valve w/box.	Ea.	1	2,500.00	2,500
Fire Hydrant w/6" Aux. Valve	Ea.	1	1,500.00	1,500
				$28,000
Contingencies, Unit Cost Increase, Engineering - 46%				12,880
				$40,880

USE $40,900

HARRISON AVENUE

FROM Essex St. TO Harrison Ave.

Item	Unit	Quantity	Unit Cost	Total
12" pipe, C.I., class 250 in place	L.Ft.	200	$ 30.60	$ 6,120
12" gate valve w/box	Ea.	1	1,500.00	1,500
Fire Hydrant w/6" Aux.Valve	Ea.	1	1,500.00	1,500
Connection to Exist. Main	Ea.	2	250.00	250
				$ 9,370
Contingencies, Unit Cost Increase, Engineering - 46%				4,310
				$13,680

USE $13,700

KNAPP STREET

FROM Stuart St. TO Beach St.

Item	Unit	Quantity	Unit Cost	Total
16" pipe, C.I., class 250 in place	L.Ft.	230	$ 40.00	$ 9,200
16" gate valve w/box	Ea.	1	2,500.00	2,500
Fire Hydrant w/6" Aux. Valve	Ea.	1	1,500.00	1,500
Connection to Exist. Main	Ea.	2	250.00	500
				$13,700
Contingencies, Unit Cost Increase, Engineering - 46%				6,302
				$20,002

USE $20,000

STUART STREET

FROM Arlington St. TO Charles St.

Item	Unit	Quantity	Unit Cost	Total
16" pipe, C.I., class in place	L.Ft.	900	$ 40.00	$36,000
16" gate valves w/box	Ea.	2	2,500.00	5,000
Fire Hydrant w/6" Aux. Valve	Ea.	1	1,500.00	1,500
Plug and Abandon Exist. 16" Main	Ea.	1	1,000.00	1,000
				$43,500
Contingencies, Unit Cost Increase, Engineering - 46%				20,010
				$63,510

USE $63,600

STUART STREET

FROM Charles St. TO Tremont St.

Item	Unit	Quantity	Unit Cost	Total
16" pipe, C.I., class 250 in place	L.Ft.	300	$ 40.00	$12,000
16" gate valve w/box	Ea.	1	2,500.00	2,500
Fire Hydrant w/6" Aux. Valve	Ea.	1	1,500.00	1,500
Connection to Exist. Main	Ea.	1	250.00	250
Plug and Abandon Exist. 16" Main	Ea.	1	1,000.00	1,000
				$17,250
Contingencies, Unit Cost Increase, Engineering - 46%				7,935
				$25,185

USE $25,200

PROJECT IMPROVEMENTS REPORT: HIGH PRESSURE FIRE
Exhibit C -- Unit Costs

12" C.I. (CEMENT LINED)

Item	Unit	Quantity Per L.F.	Unit Cost	Total
12" C.I. (Cement Lined) in place w/fitting allow.	L.F.	1.00	$21.50	$21.50
Trench-Excavation and Backfill	C.Y.	1.18	3.40	4.01
Bedding Material	C.Y.	0.11	5.00	0.55
Pavement Removal	S.Y.	0.67	1.70	1.14
Base Course Material	C.Y.	0.20	3.00	0.60
New Pavement	S.Y.	0.67	4.20	2.80
				$30.60

USE $30.60 PER L.F.

16" C.I. (CEMENT LINED)

Item	Unit	Quantity Per. L.F.	Unit Cost	Total
16" C.I. (Cement Lined) in place w/fitting allow	L.F.	1.00	$30.00	$30.00
Trench-Excavation & Backfill	C.Y.	1.28	3.40	4.35
Bedding Material	C.Y.	0.17	5.00	0.85
Pavement Removal	S.Y.	0.71	1.70	1.21
Base Course Material	C.Y.	0.21	3.00	0.63
New Pavement	S.Y.	0.71	4.20	2.98
				$40.02

USE $40.00 PER L.F.

PROJECT IMPROVEMENTS REPORT: SURFACE DRAINAGE AND SANITARY SYSTEMS

The existing sanitary sewer and surface drainage systems in the Project are combined. The system has three outflows, one each at Kneeland St., St. James Ave., and Hadassah Way. The Hadassah Way outflow is a brick interceptor which flows from the South Cove Project up Church Street to Columbus Avenue, then around the Statler Office Building to Hadassah Way, and from there crosses under the Public Garden to Beacon Street. This interceptor will be relocated in an easement approximately 200 feet east of and parallel to Hadassah Way in order to meet the requirements of the Park Plaza development and so that Hadassah Way may be discontined.

Where possible, the existing combined sewer system will be revised and updated as required and retained as the sanitary sewer, and the proposed surface drainage will be new.

The standards established by the City of Boston Public Works Department have been used for the design of these project improvements and for determining the unit costs in this estimate.

PARK PLAZA URBAN RENEWAL PROJECT
BOSTON REDEVELOPMENT AUTHORITY

FINAL PROJECT REPORT
SUPPORTING DOCUMENTATION

PROJECT IMPROVEMENTS REPORT: SURFACE DRAINAGE AND SANITARY SYSTEMS

Exhibit A -- Total Costs by Streets

SURFACE DRAINAGE

STREET	TOTAL COST	CHARGE TO PROJECT %	CHARGE TO PROJECT Amount
Boylston Street	$37,815	100	$37,815
Essex Street	150,865	100	150,865
Harrison Avenue	37,610	100	37,610
Kneeland Street	153,490	50	76,740
Providence Street	11,560	100	11,560
Stuart Street (Arlington - Tremont)	28,660	100	28,660
Stuart Street (Tremont - Washington)	16,400	50	8,200
Tremont Street	6,120	100	6,120
Washington Street	28,320	100	28,320
TOTAL	$470,840		$385,900
Contingencies, Unit Cost Increase, Engineering - 46%	216,590		177,500
GRAND TOTAL	$687,430		$563,400

SANITARY SEWERS

STREET	TOTAL COST	CHARGE TO PROJECT	
		%	Amount
Arlington Street	$ 12,440	100	$ 12,440
Boylston Street	4,850	100	4,850
Knapp Street	7,960	100	7,960
Kneeland Street	28,190	50	14,100
Stuart Street (Providence - Tremont)	46,730	100	46,730
Stuart Street (Tremont - Washington)	26,660	50	13,330
Interceptor Sewer	255,000	100	255,000
TOTAL	$381,830		$354,410
Contingencies, Unit Cost Increase, Engineering - 46%	175,640		162,990
GRAND TOTAL	$557,470		$517,400

PROJECT IMPROVEMENTS REPORT: SURFACE DRAINAGE AND SANITARY SYSTEMS

Exhibit B-1 -- Surface Drainage -- Breakdown of Costs by Streets

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BOYLSTON STREET

From Charles St. to Tremont St.

Item	Unit	Quantity	Unit Cost	Total
15" R.C. Pipe in Place	L. Ft.	340	$ 20.00	$ 6,800
Plug and Abandon existing sewer	Ea.	1	160.00	160
18" R.C. Pipe in place	L.Ft.	280	22.00	6,160
Manholes	Ea.	2	2,000.00	4,000
Plug and Abandon existing sewer	Ea.	1	160.00	160
				$17,280
Contingencies, Unit Cost Increase, Engineering			46%	7,949
				$25,229

USE $ 25,300

BOYLSTON STREET

From Tremont St. to Washington St.

Item	Unit	Quantity	Unit Cost	Total
26" R.C. Pipe in place	L.Ft.	510	$ 28.50	$14,535
Manholes	Ea.	3	2,000.00	6,000
				20,535
Contingencies, Unit Cost Increase, Engineering			46%	9,446
				$29,981

USE $ 30,000

ESSEX STREET

From Washington St. to Harrison Ave.

Item	Unit	Quantity	Unit Cost	Total
42" R.C. Pipe in Place	L.Ft.	370	$44.50	$16,465
Manholes	Ea.	2	2,200.00	4,400
42" Siphon	L.Ft.	130	1,000.00	130,000
				$150,865
Contingencies, Unit Cost Increase, Engineering - 46%				69,398
				$220,263

USE $220,300

HARRISON AVENUE

From Boylston St. to Stuart St.

Item	Unit	Quantity	Unit Cost	Total
36" R.C. Pipe in place	L.Ft.	400	$ 41.50	$16,600
Manholes	Ea.	3	2,200.00	6,600
48" R.C. Pipe in place	L.Ft.	300	47.50	14,260
Plug and Abandon existing sewer	Ea.	1	160.00	160
				$37,620
Contingencies, Unit Cost Increase, Engineering			46%	17,300
				$54,910

USE $ 55,000

KNEELAND STREET

From Washington St. to Harrison Ave.

Item	Unit	Quantity	Unit Cost	Total
36" R.C. Pipe in place	L.Ft.	460	$ 41.50	$ 19,090
Manholes	Ea.	2	2,200.00	4,400
36" Siphon	L.Ft.	130	1,000.00	130,000
				$153,490
Contingencies, Unit Cost Increase, Engineering			46%	70,605
				$224,095

USE $ 224,100

PROVIDENCE STREET

From Arlington St. to Stuart St.

Item	Unit	Quantity	Unit Cost	Total
12" R.C. Pipe in place	L.Ft.	400	$ 17.70	$ 7,080
Manholes	Ea.	2	2,000.00	4,000
Plug and Abandon existing sewer	Ea.	3	160.00	480
				$11,560
Contingencies, Unit Cost Increase, Engineering			46%	5,318
				$16,878

USE $ 16,900

STUART STREET

From Arlington St. to Tremont St.

Item	Unit	Quantity	Unit Cost	Total
12" R.C. Pipe in place	L.Ft.	250	$ 17.70	$ 4,425
15" R.C. Pipe in place	L.Ft.	520	20.00	10,400
21" R.C. Pipe	L.Ft.	300	24.00	7,200
Manholes	Ea.	3	2,000.00	6,000
Plug and Abandon existing sewer	Ea.	4	160.00	640
				$28,665
Contingencies, Unit Cost Increase, Engineering			46%	13,186
				$ 41,851

USE $ 41,900

STUART STREET

From Tremont St. to Washington St.

Item	Unit	Quantity	Unit Cost	Total
15" R.C. Pipe in place	L.Ft.	270	$ 20.00	$ 5,400
18" R.C. Pipe in place	L.Ft.	220	22.00	4,840
Manholes	Ea.	3	2,000.00	6,000
Plug and Abandon existing sewer	Ea.	1	160.00	160
				$16,400
Contingencies, Unit Cost Increase, Engineering			46%	7,544
				$ 23,944

USE $ 24,000

TREMONT STREET

From Stuart St. to Boylston St.

Item	Unit	Quantity	Unit Cost	Total
15" R.C. Pipe in place	L.Ft.	190	$ 20.00	$3,800
Manholes	Ea.	1	2,000.00	2,000
Plug and Abandon existing sewer	Ea.	2	160.00	320
				$6,120
Contingencies, Unit Cost Increase, Engineering			46%	2,815
				$ 8,935

USE $ 9,000

WASHINGTON STREET

From Stuart St. to Boylston St.

Item	Unit	Quantity	Unit Cost	Total
15" R.C. Pipe in place	L.Ft.	270	$ 20.00	$ 5,400
27" R.C. Pipe in place	L.Ft.	220	32.50	7,150
30" R.C. Pipe in place	L.Ft.	270	35.60	9,612
Manholes	Ea.	3	2,000.00	6,000
Plug and Abandon existing sewer	Ea.	1	160.00	160
				$ 28,322
Contingencies, Unit Cost Increase, Engineering			46%	13,028
				$ 41,350

USE $ 41,400

PROJECT IMPROVEMENTS REPORT: SURFACE DRAINAGE AND SANITARY SYSTEMS

Exhibit B-2 -- Sanitary Sewers - Breakdown of Costs by Streets

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ARLINGTON STREET

From Stuart St. to Providence St.

Item	Unit	Quantity	Unit Cost	Total
21" V.C. Pipe in place	L.Ft.	360	$ 29.00	$10,440
Manholes	Ea.	1	2,000.00	2,000
				$12,440
Contingencies, Unit Cost Increase, Engineering - 46%				5,704
				$18,104

USE $ 18,100.

BOYLSTON STREET

From Tremont St. to Washington St.

Item	Unit	Quantity	Unit Cost	Total
12" V.C. Pipe in place	L.Ft.	150	$ 19.00	$2,850
Manholes	Ea.	1	2,000.00	2,000
				$4,850
Contingencies, Unit Cost Increase, Engineering - 46%				2,231
				$7,081

USE $ 7,100.

KNAPP STREET

From Knapp to Beach St.

Item	Unit	Quantity	Unit Cost	Total
12" V.C. Pipe in place	L.Ft.	200	$ 19.00	$3,800
Manholes	Ea.	2	2,000.00	4,000
Plug and Abandon existing sewer	Ea.	1	160.00	160
				$7,960
Contingencies, Unit Cost Increase, Engineering - 46%				3,662
USE $ 11,700.				$11,622

KNEELAND STREET

From Washington St. to Harrison Ave.

Item	Unit	Quantity	Unit Cost	Total
36" V.C. Pipe in place	L.Ft.	380	$ 62.60	$23,788
Manholes	Ea.	2	2,200.00	4,400
				$28,188
Contingencies, Unit Cost Increase, Engineering - 46%				12,966
				$ 41,154

USE $ 41,200.

STUART STREET

From Providence St. to Tremont St.

Item	Unit	Quantity	Unit Cost	Total
21" V.C. Pipe in place	L.Ft.	1,250	$ 29.00	$36,250
Manholes	Ea.	5	2,000.00	10,000
Plug and Abandon existing 12" sewer	Ea.	3	160.00	480
				$ 46,730
Contingencies, Unit Cost Increase, Engineering - 46%				21,496
				$ 68,226

USE $ 68,300.

STUART STREET

From Tremont St. to Washington St.

Item	Unit	Quantity	Unit Cost	Total
15" V.C. Pipe in place	L.Ft.	1,030	$ 22.00	$22,660
Manholes	Ea.	2	2,000.00	4,000
				$26,660
Contingencies, Unit Cost Increase, Engineering - 46%				12,264
				$38,924

USE $ 39,000. *

* Note: The cost of the 15" Siphon at Washington Street and Stuart Street is included with the cost of the 36" Storm Drain Siphon for Kneeland Street. (See Page 81.)

INTERCEPTOR SEWER

From Providence St. to Boylston St.

Item	Unit	Quantity	Unit Cost	Total
Relocated Interceptor in place	L.Ft.	500	$ 500.00	$250,000
Manholes	Ea.	1	5,000.00	5,000
				$ 255,000
Contingencies, Unit Cost Increase, Engineering - 46%				117,300
				$ 372,300

USE $ 372,000.

PARK PLAZA URBAN RENEWAL PROJECT
BOSTON REDEVELOPMENT AUTHORITY

FINAL PROJECT REPORT
SUPPORTING DOCUMENTATION

PROJECT IMPROVEMENTS REPORT: SURFACE DRAINAGE AND SANITARY SYSTEMS

Exhibit C-1 -- Surface Drainage - Unit Costs

12" R.C. STORM SEWER

Assume 12'-0" Trench

Item	Unit	Quantity	Unit Cost	Total
12" R.C. Pipe	L.F.	1.00	$ 3.50	$ 3.50
Trench-Excavation & Backfill	C.Y.	2.21	3.40	7.51
Bedding Material	C.Y.	0.11	5.00	0.55
Pavement Removal	S.Y.	0.89	1.70	1.51
Base Course Material	C.Y.	0.28	3.00	0.84
New Pavement	S.Y.	0.89	4.20	3.74
				$17.65

USE $17.70 PER L F

15" R.C. STORM SEWER

Assume 12'-0" Trench

Item	Unit	Quantity	Unit Cost	Total
15" R.C. Pipe	L.F.	1.00	$ 5.00	$ 5.00
Trench-Excavation & Backfill	C.Y.	2.33	3.40	7.92
Bedding Material	C.Y.	0.15	5.00	0.75
Pavement Removal	S.Y.	0.90	1.70	1.53
Base Course Material	C.Y.	0.30	3.00	0.90
New Pavement	S.Y.	0.90	4.20	3.78
				$19.88

USE $20.00 PER LF

18" R.C. STORM SEWER

Assume 12'-0" Trench

Item	Unit	Quantity	Unit Cost	Total
18" R.C. Pipe	L.F.	1.00	$ 6.25	$ 6.25
Trench-Excavation & Backfill	C.Y.	2.44	3.40	8.30
Bedding Material	C.Y.	0.19	5.00	0.95
Pavement Removal	S.Y.	0.95	1.70	1.62
Base Course Material	C.Y.	0.30	3.00	0.90
New Pavement	S.Y.	0.95	4.20	3.99
				$22.01

USE $22.00 PER LF

21" R.C. STORM SEWER

Assume 12'-0" Trench

Item	Unit	Quantity	Unit Cost	Total
21" R.C. Pipe	L.F.	1.00	$ 8.00	$ 8.00
Trench-Excavation & Backfill	C.Y.	2.47	3.40	8.40
Bedding Material	C.Y.	0.23	5.00	1.15
Pavement Removal	S.Y.	1.08	1.70	1.84
Base Course Material	C.Y.	0.36	3.00	1.08
New Pavement	S.Y.	1.08	4.20	4.54
				$24.01

USE $24.00 PER LF

24" R.C. STORM SEWER

Assume 12'-0" Trench

Item	Unit	Quantity	Unit Cost	Total
24" R.C. Pipe	L.F.	1.00	$ 9.00	$ 9.00
Trench-Excavation & Backfill	C.Y.	2.90	3.40	9.86
Bedding Material	C.Y.	0.37	5.00	1.85
Pavement Removal	S.Y.	1.11	1.70	1.89
Base Course Material	C.Y.	0.38	3.00	1.14
New Pavement	S.Y.	1.11	4.20	4.66
				$28.40

USE $28.50 PER LF

27" R.C. STORM SEWER

Assume 12'-0" Trench

Item	Unit	Quantity	Unit Cost	Total
27" R.C. Pipe	L.F.	1.00	$11.00	$11.00
Trench-Excavation & Backfill	C.Y.	3.22	3.40	10.95
Bedding Material	C.Y.	0.44	5.00	2.20
Pavement Removal	S.Y.	1.18	1.70	2.01
Base Course Material	C.Y.	0.41	3.00	1.23
New Pavement	S.Y.	1.18	4.20	4.96
				$32.35

USE $32.50 PER LF

30" R.C. STORM SEWER

Assume 12'-0" Trench

Item	Unit	Quantity	Unit Cost	Total
30" R.C. Pipe	L.F.	1.00	$13.00	$13.00
Trench-Excavation & Backfill	C.Y.	3.33	3.40	11.32
Bedding Material	C.Y.	0.50	5.00	2.50
Pavement Removal	S.Y.	1.28	1.70	2.18
Base Course Material	C.Y.	0.42	3.00	1.26
New Pavement	S.Y.	1.28	4.20	5.38
				$35.64

USE $35.60 PER LF

36" R.C. STORM SEWER

Assume 12'-0" Trench

Item	Unit	Quantity	Unit Cost	Total
36" R.C. Pipe	L.F.	1.00	$17.00	$17.00
Trench-Excavation & Backfill	C.Y.	3.55	3.40	12.07
Bedding Material	C.Y.	0.63	5.00	3.15
Pavement Removal	S.Y.	1.33	1.70	2.26
Base Course Material	C.Y.	0.45	3.00	1.35
New Pavement	S.Y.	1.33	4.20	5.59
				$41.42

USE $41.50 PER LF

42" R.C. STORM SEWER

Assume 10'-0" Trench

Item	Unit	Quantity	Unit Cost	Total
42" R.C. Pipe	L.F.	1.00	$21.00	$21.00
Trench-Excavation & Backfill	C.Y.	2.96	3.40	10.06
Bedding Material	C.Y.	0.79	5.00	3.95
Pavement Removal	S.Y.	1.35	1.70	2.30
Base Course Material	C.Y.	0.47	3.00	1.41
New Pavement	S.Y.	1.35	4.20	5.67
				$44.39

USE $44.50 PER LF

48" R.C. STORM SEWER

Assume 8'-0" Trench

Item	Unit	Quantity	Unit Cost	Total
48" R.C. Pipe	L.F.	1.00	$25.00	$25.00
Trench-Excavation & Backfill	C.Y.	2.37	3.40	8.06
Bedding Material	C.Y.	0.96	5.00	4.80
Pavement Removal	S.Y.	1.40	1.70	2.38
Base Course Material	C.Y.	0.47	3.00	1.41
New Pavement	S.Y.	1.40	4.20	5.88
				$47.53

USE $47.50 PER LF

PROJECT IMPROVEMENTS REPORT: SURFACE DRAINAGE AND SANITARY SYSTEMS

Exhibit C-2 -- Sanitary Sewers -- Unit Costs

12" V.C. SANITARY SEWER

Assume 12'-0" Trench

Item	Unit	Quantity	Unit Cost	Total
12" V.C. Pipe	L.F.	1.00	$ 4.50	$ 4.50
Trench Excavation and Backfill	C.Y.	2.21	3.40	7.51
Bedding Material	C.Y.	0.11	5.00	.55
Pavement Removal	S.Y.	0.89	1.70	1.51
Base Course Material	C.Y.	0.28	3.00	.84
New Pavement	S.Y.	0.89	4.20	3.74
				$18.65

USE $ 19.00 per LF

15" V.C. SANITARY SEWER

Assume 12'-0" Trench

Item	Unit	Quantity	Unit Cost	Total
15" V.C. Pipe	L.F.	1.00	$ 7.00	$ 7.00
Trench Excavation and Backfill	C.Y.	2.33	3.40	7.92
Bedding Material	C.Y.	0.15	5.00	0.75
Pavement Removal	S.Y.	0.90	1.70	1.53
Base Course Material	C.Y.	0.30	3.00	0.90
New Pavement	S.Y.	0.90	4.20	3.78
				$ 21.88

USE $ 22.00 PER LF

21" V.C. SANITARY SEWER

Assume 12'-0" Trench

Item	Unit	Quantity	Unit Cost	Total
21" V.C. Pipe	L.F.	1.00	$12.00	$12.00
Trench Excavation and Backfill	C.Y.	2.47	3.40	8.40
Bedding Material	C.Y.	0.23	5.00	1.15
Pavement Removal	S.Y.	1.08	1.70	1.84
Base Course Material	C.Y.	0.36	3.00	1.08
New Pavement	S.Y.	1.08	4.20	4.54
				$29.01

USE $ 29.00 PER LF

36" V.C. SANITARY SEWER

Assume 12'-0" Trench

Item	Unit	Quantity	Unit Cost	Total
36" V.C. Pipe	L.F.	1.00	$ 40.00	$ 40.00
Trench Excavation and Backfill	C.Y.	3.00	3.40	10.20
Bedding Material	C.Y.	0.63	5.00	3.15
Pavement Removal	S.Y.	1.33	1.70	2.26
Base Course Material	C.Y.	0.47	3.00	1.41
New Pavement	S.Y.	1.33	4.20	5.59
				$ 62.61

USE $ 62.60 PER LF

PROJECT IMPROVEMENTS REPORT: POLICE SIGNAL & FIRE ALARM SYSTEMS

Police Signal System

The police signal system for the City of Boston is under the jurisdiction of the Boston Police Department, Signal Division. They rate the system in the renewal area as adequate and in satisfactory condition.

The New England Telephone and Telegraph Company assigns conduits in their duct banks for police signal system cables. Where available, these conduits are utilized in the renewal area. All cable, conduit other than that furnished by the New England Telephone and Telegraph Company, additional manholes, and other items necessary to complete the system are installed and maintained by the B.P.D. Signal Division.

Revisions and expansion of the existing system are proposed in the renewal area to coincide with the proposed street adjustments and land use changes. The proposed system complies with the B.P.D. Signal Division standards and regulations. The

system has an area coverage equal to the existing system. All proposed changes have been reviewed with the B.P.D. Signal Division.

Fire Alarm System

The fire alarm system for the City of Boston is under the jurisdiction of the Boston Fire Department, Fire Alarm Division. They rate the system in the renewal area as adequate and in satisfactory condition.

The system is installed, in most cases, in conduits assigned by the New England Telephone and Telegraph Company. Where available, these conduits are utilized in the renewal area. All cable, conduit and manholes other than those furnished by the New England Telephone and Telegraph Company, alarm boxes, test posts, and other appurtenances are installed and maintained by the Boston Fire Department Alarm Division.

Revisions to and expansion of the existing system will be installed to conform with the proposed street adjustments and the various land use changes. Fire alarm boxes will be relocated due to street widening, and new alarm boxes will be provided in locations where land use changes are proposed to provide better protection.

The proposed system complies with the Boston Fire Department

Fire Alarm Division standards and regulations. The system has an area coverage equal to that of the existing system. All proposed changes have been discussed and reviewed with the Boston Fire Department Fire Alarm Division.

PROJECT IMPROVEMENTS REPORT: POLICE SIGNAL & FIRE ALARM SYSTEMS
Exhibit A— Total Costs by Streets

STREET	TOTAL COST	CHARGE TO PROJECT %	CHARGE TO PROJECT Amount
Boylston	15,680	100	15,680
New Charles	20,250	100	20,250
Providence	13,890	100	13,890
Providence St. Extension	14,590	100	14,590
Stuart	15,720	50	7,860.
Tremont	10,650	100	10,650
Washington	3,280	100	3,280
TOTAL	$94,060		$86,200
Contingencies, Unit Cost Increase, Engineering - 46%	43,270		39,700
GRAND TOTAL	$137,330		$125,900

PROJECT IMPROVEMENTS REPORT: POLICE SIGNAL AND FIRE ALARM SYSTEMS
Exhibit B — Breakdown of Costs by Streets

BOYLSTON STREET

FROM Arlington St. TO New Charles

Item	Unit	Quantity	Unit Cost	Total
Police Signal Conduit & Cable, In place	L.F.	40	14.75	$ 590
Fire Alarm Conduit & Cable, In place	L.F.	40	14.75	590
Police Signal and Fire Alarm Combined Conduit & Cable, In place	L.F.	490	25.00	12,250
Manhole - In place	Ea.	1	950.00	950
Fire Alarm Box - New	Ea.	1	650.00	650
Police Signal Box - New	Ea.	1	650.00	650
				$15,680
Contingencies, Unit Cost Increase, Engineering - 46%				7,213
				$22,893

USE $22,900

NEW CHARLES STREET

FROM Boylston TO Stuart

Item	Unit	Quantity	Unit Cost	Total
Police Signal Conduit & Cable, In place	L.F.	120	14.75	1,770
Fire Alarm Conduit & Cable, In place	L.F.	70	14.75	1,033
Police Signal and Fire Alarm Combined Conduit & Cable, In place	L.F.	580	25.00	14,500
Manhole - In place	Ea.	2	950.00	1,900
Manhole - Modified	Ea.	2	200.00	400
Fire Alarm Box - New	Ea.	1	650.00	650
				$20,253
Contingencies, Unit Cost Increase, Engineering 46%				9,316
				$29,569

USE $29,600

PROVIDENCE STREET

FROM Arlington TO Providence St. Extension

INTERIOR

Item	Unit	Quantity	Unit Cost	Total
Fire Alarm Conduit & Cable, In place	L.F.	30	$14.75	$ 443
Police Signal and Fire Alarm Combined Conduit & Cable, In place	L.F.	480	25.00	12,000
Manhole - In place	Ea.	1	950.00	950
Manhole - Modified	Ea.	1	200.00	200
Police Signal Box - Remove & Relocate	Ea.	1	300.00	300
				$13,893
				6,391
Contingencies, Unit Cost Increase, Engineering - 46%				$20,284

USE $20,300

PROVIDENCE STREET EXTENSION

FROM Providence TO Stuart

INTERIOR

Item	Unit	Quantity	Unit Cost	Total
Police Signal Conduit & Cable, In place	L.F.	30	14.75	$ 443
Fire Alarm Conduit & Cable, In place	L.F.	30	14.75	443
Police Signal and Fire Alarm Combined Conduit & Cable, In place	L.F.	420	25.00	10,500
Manhole - In place	Ea.	2	950.00	1,900
Fire Alarm Box - New	Ea.	1	650.00	650
Police Signal Box - New	Ea.	1	650.00	650
				$14,586
				6,710
Contingencies, Unit Cost Increase, Engineering - 46%				$21,296

USE $21,300

STUART STREET

FROM Arlington TO Tremont

BOUNDARY

Item	Unit	Quantity	Unit Cost	Total
Police Signal Conduit & Cable, In place	L.F.	230	14.75	$3,393
Fire Alarm Conduit & Cable, In place	L.F.	90	14.75	1,328
Police Signal and Fire Alarm Conduit Combined, Conduit & Cable, In place	L.F.	330	25.00	8,250
Fire Alarm Box - Remove & Relocate	Ea.	1	300.00	300
Fire Alarm Box - New	Ea.	1	650.00	650
Police Signal Box - Remove & Relocate	Ea.	1	300.00	300
Fire Test Pole - Remove & Relocate	Ea.	1	1,500.00	1,500
				$15,721
Contingencies, Unit Cost Increase, Engineering - 46%				7,232
				$22,953

USE $23,000

TREMONT STREET

FROM Boylston TO Stuart

Item	Unit	Quantity	Unit Cost	Total
Police Signal Conduit & Cable, In place	L.F.	40	14.75	$ 590
Fire Alarm Conduit & Cable, In place	L.F.	50	14.75	738
Police Signal and Fire Alarm Combined Conduit & Cable, In place	L.F.	240	25.00	6,000
Manhole - In place	Ea.	1	950.00	950
Manhole - Modified	Ea.	1	200.00	200
Fire Alarm Box - New	Ea.	1	650.00	650
Police Signal Box - New	Ea.	1	650.00	650
Pavement, Remove & Replace	L.F.	330	2.65	875
				$10,653
Contingencies, Unit Cost Increase, Engineering - 46%				4,900
				$15,553

USE $15,600

WASHINGTON STREET

FROM 100' South of Essex TO Stuart

Item	Unit	Quantity	Unit Cost	Total
Police Signal Conduit & Cable, In place	L.F.	40	14.75	590
Fire Alarm Conduit & Cable, In place	L.F.	40	14.75	590
Fire Alarm Box - Remove & Relocate	Ea.	1	300.00	300
Police Signal Box - Remove & Relocate	Ea.	1	300.00	300
Fire Test Pole - Remove & Relocate	Ea.	1	1,500.00	1,500
				$3,280
Contingencies, Unit Cost Increase, Engineering - 46%				1,509
				$4,789

USE $4,800

PROJECT IMPROVEMENTS REPORT: POLICE SIGNAL & FIRE ALARM SYSTEMS
Exhibit C — Unit Costs

POLICE SIGNAL OR FIRE ALARM CONDUIT AND CABLE

Assume 3'-0" Trench

Item	Unit	Quantity Per L.F.	Unit Cost	Total
3" WI Conduit w/Fitting Allowance	L.F.	1.00	6.00	$6.00
#12 BW or Galvanized Pull Wire	L.F.	1.00	0.30	0.30
Cable	L.F.	1.00	4.00	4.00
Trench Excavation & Backfill	C.Y.	0.19	9.50	1.80
Replace Existing Pavement	S.Y.	0.22	12.00	2.64
				$14.74

USE $14.75 Per L.F.

POLICE SIGNAL AND FIRE ALARM COMBINED CONDUIT AND CABLE

Assume 3'-0" Trench

Item	Unit	Quantity Per L.F.	Cost	Total
3" WI Conduit (Police) w/Fitting Allowance	L.F.	1.00	6.00	$ 6.00
3" WI Conduit (Fire Alarm) w/Fitting Allowance	L.F.	1.00	6.00	6.00
#12 BW or Galvanized Pull Wire	L.F.	2.00	0.30	0.60
Cable (Police)	L.F.	1.00	4.00	4.00
Cable (Fire Alarm)	L.F.	1.00	4.00	4.00
Trench Excavation & Backfill	C.Y.	0.19	9.50	1.80
Replace Existing Pavement	S.Y.	0.22	12.00	2.64
				$25.04

USE $25.00 Per L.F.

POLICE SIGNAL CABLE

Item	Unit	Quantity Per L.F.	Cost	Total
Remove Existing Cable & Clean Conduit	L.F.	1.00	0.15	0.15
#12 BW or Galvanized Pull Wire	L.F.	1.00	0.30	0.30
Cable	L.F.	1.00	4.00	4.00
				4.45

USE $4.45 Per L.F.

POLICE SIGNAL AND FIRE ALARM - MISCELLANEOUS ITEMS

Item	Unit	Quantity	Unit Cost	Total
Manhole - In place	Ea.	1	950.00	950
Manhole - Modified	Ea.	1	200.00	200
Fire Alarm Box - New	Ea.	1	650.00	650
Fire Alarm Box - Remove & Relocate	Ea.	1	300.00	300
Police Signal Box - New	Ea.	1	650.00	650
Police Signal Box - Remove & Relocate	Ea.	1	300.00	300
Fire Test Pole - Remove & Reset	Ea.	1	1,500.00	1,500

PAVEMENT REMOVED & REPLACED

Item	Unit	Quantity Per L.F.	Unit Cost	Total
Pavement Removed & Replaced	S.Y.	0.22	12.00	2.64

USE $2.65 Per L.F.

PROJECT IMPROVEMENTS REPORT: TRAFFIC CONTROL SYSTEM

The proposed improvements in the traffic control system comprise two main categories; electric signalization and street pavement markings.

The principal work involves improvements to existing signalization and installation of new signalization of eight intersections representing all intersections of arterial and collector streets in the area. In cases of street widenings at existing signalized intersections, existing fixtures will be used in the relocation of signals wherever feasible.

Pavement markings include lane dividers, stop lines and crosswalk lines. Lane dividers will be painted on all major streets and crosswalks and stop lines at every intersection.

The locations for traffic signalization are based on the following criteria; (1) Intersecting roadways carrying more than one lane of traffic where a large volume is expected; (2) Intersections where the crossing of a heavy movement and a

light movement would create problems or would conflict and interrupt major flow; (3) Intersections where major or minor left-turn movement will occur; (4) Intersections where it is likely that vehicular and pedestrian movement will conflict; (5) Intersections where it appears that traffic conflict will exist in large numbers on the basis of the overall street pattern.

The standards used for the traffic control system have been based on the "Manual on Uniform Traffic Control Devices for Streets and Highways", published by the United States Department of Commerce, Bureau of Public Roads. Where warranted, standard vehicular signals will be supplemented by pedestrian signals at each end of controlled crosswalks.

The aforementioned manual itemizes several warrants for determining which intersections are to be signalized: (1) Vehicular volume; (2) Interruption of continuous flow; (3) Pedestrian volume; (4) Progressive movement; (5) Accident experience; (6) Any combination of the above.

PARK PLAZA URBAN RENEWAL PROJECT
BOSTON REDEVELOPMENT AUTHORITY

FINAL PROJECT REPORT
SUPPORING DOCUMENTATION

PROJECT IMPROVEMENTS REPORT: TRAFFIC CONTROL SYSTEM
Exhibit A — Total Costs by Streets

		TOTAL COST	CHARGE TO PROJECT %	CHARGE TO PROJECT AMOUNT
1.	Arlington St. & Boylston Street	2,640	100	2,640
2.	Arlington St., Providence Street & St. James St.	9,080	100	9,080
3.	Arlington St., Columbus Avenue & Stuart Street	10,320	50	5,160
4.	Boylston St. & New Charles St.	13,100	100	13,100
5.	Boylston St. & Tremont St.	3,660	100	3,660
6.	Stuart St. & New Charles	11,040	50	5,520
7.	Stuart St. & Tremont St.	5,380	50	2,690
8.	Stuart St., Washington St. & Kneeland Street	6,580	50	3,290
9.	Pavement Markings	12,000	100	12,000
	TOTAL	$ 73,800		$ 57,140
	Contingencies, Unit Cost Increase, Engineering - 46%	33,950		26,260
	GRAND TOTAL	$107,750		$83,400

PROJECT IMPROVEMENTS REPORT: TRAFFIC CONTROL SYSTEM
Exhibit B — Breakdown of Costs by Streets

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1. ARLINGTON STREET & BOYLSTON ST.

Item	Unit	Quantity	Unit Cost	Total
Controller	Ea.	1	2,200.00	2,200.00
Installation	L.S.	-	-	440.00
				$2,640.00
Contingencies, Unit Cost Increase, Engineering - 46%				1,214.00
				$3,854.00

USE $3,900.00

2. ARLINGTON STREET, ST. JAMES AVENUE & PROVIDENCE STREET

Item	Unit	Quantity	Unit Cost	Total
Pedestal w/Base & Foundation	Ea.	5	130.00	650.00
Pedestrian Signal Head	Ea.	8	120.00	960.00
Traffic Signal Head	Ea.	4	100.00	400.00
Controller	Ea.	1	2,200.00	2,200.00
Conduit & Excavation	L.F.	310	10.00	3,100.00
Cable	L.F.	370	0.80	296.00
Installation	L.S.	-	-	1,473.00
				$9,079.00
Contingencies, Unit Cost Increase, Engineering - 46%				4,176.00
				$13,255.00

USE $13,300.00

3. ARLINGTON ST., COLUMBUS AVENUE & STUART STREET

Item	Unit	Quantity	Unit Cost	Total
Pedestal w/Base & Foundation	Ea.	10	130.00	1300.00
Traffic Signal Head	Ea.	9	100.00	900.00
Pedestrian Signal Head	Ea.	10	120.00	1200.00
Controller	Ea.	1	2,200.00	2200.00
Conduit & Excavation	L.F.	300	10.00	3000.00
Cable	L.F.	400	0.80	320.00
Installation	L.S.	-	-	1400.00
				10,320.00
Contingencies, Unit Cost Increase, Engineering - 46%				4,747.00
				$15,067.00

USE $15,100.

4. NEW CHARLES STREET & BOYLSTON STREET

Item	Unit	Quantity	Unit Cost	Total
Pedestal w/Base & Foundation	Ea.	9	130.00	1,170.0
Traffic Signal Head	Ea.	7	100.00	700.0
Pedestrian Signal Head	Ea.	12	120.00	1,440.0
Controller	Ea.	1	2,200.00	2,200.0
Conduit and Excavation	L.F.	500	10.00	5,000.0
Cable	L.F.	590	0.80	472.0
Installation	L.S.	-	-	2,120.0
				$13,102.0
Contingencies, Unit Cost Increase, Engineering - 46%				6,027.0
				$19,129.0

USE $19,200

5. BOYLSTON STREET & TREMONT STREET

Item	Unit	Quantity	Unit Cost	Total
Pedestal w/Base & Foundation	Ea.	1	130.00	130.00
Controller	Ea.	1	2,200.00	2,200.00
Conduit & Excavation	L.F.	60	10.00	600.00
Cable	L.F.	150	0.80	120.00
Installation	L.S.	-	-	610.00
				$3,660.00
Contingencies, Unit Cost Increase, Engineering - 46%				1,684.00
				$5,344.00

USE $5,400

6. STUART STREET & NEW CHARLES STREET

Item	Unit	Quantity	Unit Cost	Total
Pedestal w/Base & Foundation	Ea.	6	130.00	780.00
Traffic Signal Head	Ea.	8	100.00	800.00
Pedestrian Signal Head	Ea.	16	120.00	1,920.00
Controller	Ea.	1	2,200.00	2,200.00
Conduit & Excavation	L.F.	360	10.00	3,600.00
Cable	L.F.	550	0.80	440.00
Installation	L.S.	-	-	1,300.00
				$11,040.00
Contingencies, Unit Cost Increase, Engineering - 46%				5,078.00
				$16,118.00

USE $16,200

7. STUART STREET & TREMONT STREET

Item	Unit	Quantity	Unit Cost	Total
Pedestal w/Base & Foundation	Ea.	6	130.00	780.00
Traffic Signal Head	Ea.	4	100.00	400.00
Pedestrian Signal Head	Ea.	8	120.00	960.00
Controller	Ea.	1	2,200.00	2,200.00
Conduit & Excavation	L.F.	20	10.00	200.00
Cable	L.F.	230	0.80	184.00
Installation	L.S.	--	-	650.00
				5,374.00
Contingencies, Unit Cost Increase, Engineering - 46%				2,472.00
				$ 7,846.00

USE $7,900.

8. STUART STREET & WASHINGTON STREET & KNEELAND ST.

Item	Unit	Quantity	Unit Cost	Total
Pedestal w/Base & Foundation	Ea.	6	130.00	780.00
Traffic Signal Head	Ea.	4	100.00	400.00
Pedestrian Signal Head	Ea.	8	120.00	960.00
Controller	Ea.	1	2,200.00	2,200.00
Conduit & Excavation	L.F.	110	10.00	1,100.00
Cable	L.F.	300	0.80	240.00
Installation	L.S.	-	-	900.00
				$6,580.00
Contingencies, Unit Cost Increase, Engineering - 46%				3,027.00
				$9,607.00

USE $9,600.

9. PAVEMENT MARKINGS

10,000 LF of Lane Lines and Center Lines @ 0.50/LF	5,000.00
5,000 LF of Cross Walk and Stop Lines @ 1.40/LF	7,000.00
	$12,000.00

USE $12,000

PROJECT IMPROVEMENTS REPORT: STREET, TRAFFIC, & DIRECTIONAL SIGNS

The standards established by the Traffic and Parking Department, City of Boston, were used in estimating the street, traffic, and directional signs for the Park Plaza Project. These improvements consist of street name signs, parking signs, stop signs, and directional control signs. Existing signs will be used whereever possible.

The street name signs will be designed or specified by the Traffic and Parking Department or their design consultant to conform with the overall architectural planning for the Park Plaza Project.

PROJECT IMPROVEMENTS REPORT: STREET, TRAFFIC, AND DIRECTIONAL SIGNS
Exhibit A — Total Costs

	TOTAL COST	CHARGE TO PROJECT %	CHARGE TO PROJECT Amount
Street, Traffic, & Directional Signs	18,000.00	100	18,000.00
TOTAL	$18,000.00		$18,000.00
Contingencies, Unit Cost Increase, Engineering - 46%	8,300.00		8,300.00
GRAND TOTAL	$26,300.00		$26,300.00

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